HENDERSON'S

HANDBOOK OF PLANTS

AND

GENERAL HORTICULTURE.

BY

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AUTHOR OF

"GARDENING FOR PROFIT," "PRACTICAL FLORICULTURE,"
"GARDENING FOR PLEASURE," ETC., ETC.,

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PREFACE TO THE SECOND EDITION.

ALTHOUGH I have every reason to be satisfied with the flattering reception given to the first edition of the HANDBOOK OF PLANTS, issued in 1881, yet I have ever believed that its scope was too limited; that the requirements of the thousands of amateurs, young florists and gardeners, needed something having a wider range. To meet that want there is not only added in the present edition all the new genera of any importance up to date, but there is specified in many instances the more important and useful species and varieties of the genera described, together with brief instructions for propagation and culture. The botanical and technical terms, and a very full list of the best-known English or popular names, are also given, and great care has been exercised to have all the generic names accentuated according to the latest authorities. Nearly one thousand *engravings* of the various plants described in the body of this work are shown. The natural system of arrangement being now generally used, is adopted in the descriptions instead of the Linnæan or artificial system.

Very full instructions are given for the culture and forcing of all Fruits, Flowers and Vegetables of importance, such as Grape Vines, Strawberries, Roses, Bulbs of all kinds, Celery, Cauliflower, Tomatoes, Cucumbers, Mushrooms, etc.; in short, I believe that there is sufficient matter given on all gardening subjects to allow me to claim for this book that it is an

AMERICAN Gardener's Dictionary.

A series of tables and memoranda on horticultural and agricultural subjects, such as Seeds, Crops, Stock, Forestry, Measures, Weights, Temperature, etc., is also added, which, together with a carefully compiled glossary of the technical terms used in describing plants, and a monthly calendar of operations for the green-house and window garden, flower, fruit and kitchen garden, will undoubtedly render this edition valuable as a book of reference.

The name of the book will now be "THE HANDBOOK OF PLANTS AND GENERAL HORTICULTURE," and I believe that for all practical purposes it will be better adapted to the wants of American horticulturists than any of the more costly British works on gardening, and at one-third of their cost; for though from a foreign standpoint these are all they claim to be, yet for the American climate much of the information, and especially the gardening instructions, are not only useless, but actually misleading.

In the first edition of this work I was largely indebted to the following books as authorities :

Loudon's Encyclopædia of Plants; Paxton's Botanical Dictionary; Paxton's Magazine of Botany; Johnson's Gardener's Dictionary; McIntosh's Book of the Garden; Rhind's Vegetable Kingdom; Lindley's Treasury of Botany; Orchid Grower's Manual; Miller's Gardener's Dictionary; Gerarde's Herbal (1597); Parkinson's Garden of Pleasant Flowers (1629); Dodoen's Plants (1587); Gray's Manual of Botany; Chapman's Southern Flora; American Agriculturist, of New York; The Gardener's Monthly, of Philadelphia, Pa.; and The Garden, London, England.

In addition to the above, I am indebted for plants of late introduction to—

Nicholson's Dictionary of Gardening, The Garden Oracle, Robinson's English Flower Garden, The Gardener's Chronicle, Journal of Horticulture (London), and the various American horticultural journals.

In compiling this edition, I have been most ably assisted by Mr. WM. J. DAVIDSON, of Brooklyn, N. Y., who not only is a thorough botanist, but is perhaps the peer of any man in the United States to-day in his all-round knowledge of garden work.

PETER HENDERSON.

JERSEY CITY, N. J., *January*, 1890.

4356.

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Aaron's Beard. *Hypericum calycinum.*

Aaron's Club. *Verbascum Thapsus.*

Aba'ca, a popular name given to one of the *Musas* or *Bananas* of the Philippine Islands, which yields Manilla hemp.

Abe'le. The White Poplar, *Populus alba,* of Europe; a tree that has been extensively planted as an ornamental tree, but discarded because of its tendency to sucker and spread beyond control.

Abe'lia. After *Dr. Abel,* physician to the embassage of Lord Amherst to China. Nat. Ord. *Caprifoliaceæ.*

A small genus of green-house shrubs, found in India, China, Mexico, and Japan. They are of a slender branching habit, bearing opposite leaves and terminal bunches of tubular rose-colored or dark crimson flowers. *A. rupestris,* a native of China, is of dwarf habit, and flowers profusely in autumn or winter. The flowers are in compact clusters, very fragrant. *A. rupestris grandiflora,* a seedling of Italian origin, has larger flowers, and the whole plant is more robust. *A. floribunda,* a Mexican species, has dark-colored flowers, produced from the axils of the leaves. All the species are increased by cuttings. Introduced in 1844.

Abelmo'schus esculentus. The modern botanical name for Okra. See *Hibiscus.*

Abe'ria. A genus of *Flacourtiaceæ,* consisting of a few species, mostly natives of tropical Africa, the Cape, and Ceylon. The fruits of *A. Caffra,* the Kei apple of the Cape, are of a golden-yellow color, about the size of a small apple, and are used by the natives for making a preserve. They are so exceedingly acid when fresh, that the Dutch settlers prepare them for their table as a pickle, without vinegar. The plant is also much grown for hedges; being densely clothed with strong, dry spines, it forms an impenetrable fence.

Aberrant. Something which differs from the customary or usual structure, or deviates from the natural or direct way. Also, a group of plants which stands intermediate, as it were, between two other groups; *e. g.,* *Fumariaceæ,* which are by some regarded as an *aberrant* group of *Papaveraceæ.*

A'bies. Spruce, Fir. The classical Latin name, Nat. Ord. *Coniferæ.*

An extensive genus of hardy evergreen trees. Most of the species are ornamental, and are extensively planted for hedges around large grounds, or for single specimens on the lawn. *A. excelsa,* the Norway Spruce, is the most commonly planted, and is one of the most graceful and popular species. *A. alba* is the White Spruce; *A. balsamea,* the Balsam Fir; and *A. nigra,* the Black or Double Spruce. The correct name of *A. Canadensis,* the Hemlock Spruce, is *Tsuga Canadensis,* which see. *A. Douglasii,* syn. *Pseudotsuga Douglasii,* is a noble species, common west of the Rocky Mountains. It attains a height of two hundred feet, and a diameter of ten feet, and is entitled to a place among the "great trees" of California.

Abnormal. Opposed to the usual structure. Thus, stamens standing opposite to petals are abnormal, it being usual for stamens to be alternate with petals if equal to them in number. Leaves growing in pairs from the same side of a stem, as in *Atropa Belladonna,* and flower stalks adherent to the midrib of a bract, as in *Tilia,* are also abnormal.

Abo'bra. Its Brazilian name. Nat. Ord. *Cucurbitaceæ.*

A. viridiflora is a very pretty climber, suitable for planting out during summer. Foliage dark green and glossy; flowers insignificant, but the small scarlet fruit makes the plant very effective. Root tuberous, perennial. Keep during winter like the Dahlia.

Abortive. Imperfectly developed; as abortive stamens, which consist of a filament only; abortive petals, which are mere bristles or scales.

Abro'ma. From *a,* privative, and *broma,* food; unfit to be eaten. Nat. Ord. *Sterculiaceæ.*

Handsome, free-flowering species of easy culture, growing readily in common loam, and propagated by seeds or offsets. The flowers are in terminal or axillary clusters, yellow or purple. *A. sinuosa,* from Madagascar, introduced in 1884, is a very pretty plant of slender habit. The bark of *A. augusta,* a native of the East Indies, furnishes a very strong white fiber, used in the manufacture of cordage that is not liable to be weakened by exposure to wet. Of easy culture; propagated by seeds or cuttings. Introduced to cultivation in 1770.

Abro'nia. Sand Verbena. From *abros,* delicate; referring to its involucrum. Nat. Ord. *Nyctaginaceæ.*

These charming annuals are natives of California. *A. umbellata,* introduced in 1826, is a

handsome trailing plant, well adapted for rock-work, suspended baskets, or beds, flowering freely during the autumn months. Flowers in trusses, like the Verbena, of a rosy-lilac color, very fragrant. They succeed well also in the garden border. Seed should be sown as soon as the ground is in order. They may with profit be started in a hot-bed or frame, and transplanted to any desired situation.

A'brus. Wild Liquorice. From *abros*, soft; in allusion to the delicacy of the leaves. Nat. Ord. *Leguminosæ.*

A. precatorius, the only species, is found in India, the West Indies, and the Mauritius. It is chiefly remarkable for its small, egg-shaped seeds, which are of a brilliant scarlet color, with a black mark, indicating the place where they were attached to the pod. These seeds are much used for necklaces and other ornamental purposes, and are employed in India as a standard of weight, under the name of Rati. The weight of the Koh-i-noor diamond is known to have been ascertained in this way. The specific name is from *precatorius*, prayer, the seeds being used for rosaries.

Absinth. See *Artemisia absinthium.*

Abu'tilon. Chinese Bell-flower. Arabic name for a plant like a Mallow. Nat. Ord. *Malvaceæ.*

A highly interesting genus of free-growing and free-flowering shrubs, excellent both for the green-house and for garden decoration in summer. They produce white, rose, yellow, or orange-colored flowers, all except the white being veined or striped with red and crimson. They grow rapidly when planted in sandy loam, and are readily propagated by cuttings.

Aca'cia. From *akazo*, to sharpen, on account of the prickliness of the species first noticed. Nat. Ord. *Leguminosæ.*

An extensive group of really handsome plants, many of them assuming in their native positions the character of timber trees; but with us are easily accommodated in a good conservatory, where their bright yellow flowers, produced in winter and early spring, are highly ornamental. The species best deserving of cultivation are all natives of Australia, New South Wales, and other temperate regions, and are among the hardiest and most easily cultivated of green-house plants. They succeed best when planted out in the green-house, but may be satisfactorily managed in pots, if grown in a sandy loam. Cuttings may be struck in a gentle heat under glass, though young plants are more easily obtained from seed.

Acæ'na. From *Akaina*, a thorn; in allusion to the thorns or bristles on the calyx or fruit. Nat. Ord. *Rosaceæ.*

A small genus, natives of Australia and Tasmania. *A. microphylla* is a dwarf-growing plant, with dark brown pinnately-divided leaves, growing freely in light soil; flowers in globular heads in August and September. It is chiefly remarkable for the crimson-colored spines that protrude from the angles of the calyx. Propagation by cuttings. Introduced 1854. Syn. *A. Novæ Zealandiæ.*

Aca'lypha. From *akalos*, unpleasant, and *aphe*, touch. Nat. Ord. *Euphorbiaceæ.*

This genus comprises over two hundred species, widely distributed over the warmer

regions, several being extra-tropical American. *A. tricolor* is a handsome green-house shrub with coppery-green foliage, curiously blotched, mottled, and splashed with red and crimson. It is a native of the New Hebrides. Introduced in 1866. *A. Macafeeana, A. Marginata*, and others of the hybridized varieties, when well grown have highly-colored leaves, and as they stand the sun well, are desirable for vases, rustic designs, or garden decorations. They are increased by cuttings.

Acantha'ceæ. A large order of soft-wooded herbaceous plants with monopetalous axillary flowers. In tropical regions they are very common, constituting a large part of the herbage. One genus, however, the *Acanthus*, is found in Greece, and two, *Dianthera* and *Ruellia*, are natives of this country. The greater part are mere weeds, but some are plants of great beauty, especially the species of *Justicia, Aphelandra, Cyrtanthera, and Ruellia.* For the most part they are mucilaginous and slightly bitter, and some are used in dyeing.

Acantholi'mon. From *Acanthos*, a spine, and *limon*, sea-lavender; referring to its leaves and bracts. Nat. Ord. *Plumbaginaceæ.*

A. glumaceum, the only species of interest, is a dense, tufty, prostrate plant, with needle-shaped leaves and pink flowers, closely related to *Statice*, and formerly grown under the name of *S. Ararati;* it is well adapted for rock-work; blooms in July and August. Native of Armenia. Introduced in 1851.

Acanthopa'nax. From *acanthos*, a spine, and *Panax*; alluding to the spiny stems and Panax-like aspect of the plants. Nat. Ord. *Araliaceæ.*

A genus of green-house shrubs, natives of Japan, China, and tropical Asia, differing botanically from *Aralia*, from which genus they are removed. There are about eight species, of which the most desirable are *A. ricinifolia* (syn. *Aralia Maximowiczii)* and *A. spinosum*, better known as *Aralia pentaphylla.*

Acanthophip'pium. A genus of terrestrial orchids allied to Bletia, with large, fleshy, tubular flowers growing almost at the base of the leaves. The flowers are rather pretty and fragrant, remaining a long time in bloom. There are, however, so many more desirable orchids that they are rarely seen in collections of these popular plants.

Acanthophœ'nix. A genus of Palms, established for two species, closely allied to *Areca*, from the Mascaren Islands. They do not appear to differ from that genus except in habit. The stems are shorter, and the petiole and midrib of the leaves are armed with long filiform prickles. Introduced in 1868.

Acanthorhi'za. A small genus of Palms, closely allied to *Chamærops*, from which, however, they differ in having their leaves divided into broad segments, and the peculiar spiny roots which surround the base of the stem. These plants are very ornamental, either for the conservatory or the sub-tropical garden.

Acan'thus. From *akanthos*, a spine; some of the species being spiny. Nat. Ord. *Acanthaceæ.*

A group of stately ornamental perennial plants, mostly hardy, remarkable for their vigorous growth and beautiful foliage. It is con-

ABRONIA.

ADONIS ÆSTIVALIS.

ABOBRA.

ABIES ALBA.

ACANTHUS.

ADLUMIA.

ACACIA.

ABUTILON.

AGROSTEMMA CORONARIA.

ACROCLINIUM.

ÆTHIONEMA.

AGERATUM (DWARF).

ALONSOA.

ACHILLEA MILLEFOLIUM.

ACHIMENES.

ADONIS VERNALIS.

jectured that the leaf of *A. spinosus* furnished the model for the decoration of the capitals of the columns in the Corinthian style of architecture. Propagated by seeds or division of the roots.

Acaulescent. With apparently no stem.

Accessory. Something additional, not usually present.

Acclimatize. To accustom a plant to live in the open air without protection, in a country where it is not indigenous. We give the meaning attached to the term, though we question the popular belief. Plants may become acclimatized in the course of ages, but not perceptibly in any one generation. It is true we can temporarily and gradually harden off a plant so that it will stand a great degree of cold, but the product of that plant, whether from cuttings or seeds, will not be hardier than the original individual.

Accumbent. Lying against anything; used in opposition to incumbent, or lying upon something; a term employed in describing the embryo of Crucifers.

A'cer. Maple. From *acer*, hard, or sharp; the wood is extremely hard, and was formerly much used for making pikes and lances. Nat. Ord. *Aceraceæ*.

A genus comprised for the most part of handsome deciduous shrubs and trees, well adapted for forming shrubberies, and used extensively as shade trees. Several of the species produce very valuable timber. Sugar is one of the constituent parts of the sap in all of the species, and in this country large quantities of excellent sugar and syrup are manufactured from the sap of the Sugar Maple, *A. Saccharatum*. The beautiful varieties of *A. Japonicum* and *A. palmatum*, introduced by Mr. Thomas Hogg from Japan, form strikingly handsome objects for lawn decoration. The leaves of some of them are beautifully dissected, rivalling fern fronds in beauty, while many others have the richest tints of yellow, pink, red and brown, giving them during the entire summer a rich autumnal appearance. They are perfectly hardy, and are increased by grafting on a dwarf Japanese species. *A. negundo*, or Box Elder, is now called *Negundo aceroides*, or *N. fraxinifolium*, which see.

Acera'ceæ. A natural order of trees and shrubs inhabiting Europe, the temperate parts of Asia, the north of India, and North America. The order is unknown in Africa and the southern hemisphere. The bark of some is astringent, and yields reddish-brown and yellow colors. The order only contains three genera, and rather more than fifty species, of which the Maple and Sycamore are well-known representatives.

A'ceras. Man Orchis. From *a*, without, and *Keras*, a horn; the lip having no spur. A very interesting genus of terrestrial orchids, the most singular of which is the Green Man Orchis, indigenous to dry, chalky pastures in the southeast of England.

Acera'tes. Green Milkweed. A genus of *Asclepiaceæ*, natives of America and Mexico. The leaves of *A. Viridiflora*, one of the most common species, are singularly variable in form, ranging from obovate to lanceolate, or linear.

Acerose. Needle pointed; fine and slender, with a sharp point.

Acha'nia Malvaviscus. A synonym of *Malvaviscus arboreus*, which see.

Achille'a. Yarrow. Named in honor of Achilles, a pupil of Chiron, who first used it in medicine. Nat. Ord. *Compositæ*.

Free-flowering, hardy herbaceous plants, particularly suited to plant among rock-work, or in situations refused by more tender plants. They are chiefly European plants, and the prevailing colors of the flowers are yellow and white. *A. millefolium*, or Milfoil, the common Yarrow, is common on our roadsides and neglected fields. *A. tomentosa*, of dense habit, is one of the best and brightest yellow flowers for the herbaceous border, or rock-garden. *A. Ptarmica flore-pleno* is another most useful hardy perennial, producing a wealth of its double white flowers all summer. It is also very useful for cutting. Called erroneously by some *A. alba flora-plena*.

Achime'nes. From *cheimaino*, to suffer from cold, and *a* prefixed as an augmentive; alluding to the tenderness of the genus. Nat. Ord. *Gesneraceæ*.

One of the finest of modern introductions, the whole of the species being splendid summer ornaments of the green-house or conservatory. Flowers of all shades, from white to crimson. The scaly bulbs or tubers require to be kept perfectly dormant in winter, and about January to be potted in light loam and leaf-mould, plunged into a moderate hot-bed, and encouraged with a warm, genial atmosphere. When they have attained a few inches in height they may be placed several together in a shallow pan, or repotted separately, and by the end of April gradually inured to the temperature of the green-house, where they afford a blaze of beauty the whole of the summer. They are mostly natives of Mexico and Guatemala, though a few have been received from the West Indies.

Achyra'nthes. From *achuron*, chaff, and *anthos*, a flower; in allusion to the chaffy nature of the floral leaves. Nat. Ord. *Amaranthaceæ*.

Most of this genus are of but little value. Some of the species are very beautiful, and largely employed in ribbon-gardening, or any situation where plants need to be "trained," as they can be made to grow in any desired shape or form. They require the full sunshine to develop their intense color. Propagated by cuttings. Syns. *Iresine* and *Chamissoa*.

Acine'ta. From *akineta*, immovable; the lip being jointless. Nat. Ord. *Orchidaceæ*.

A small genus of curious epiphytal Orchids from Mexico. Flowers yellow, crimson and yellow, and chocolate and crimson, borne on slender spikes about one foot long. They are of easy culture, requiring a house of medium temperature, and to be grown in baskets of moss. Introduced in 1837.

Aciphy'lla. From *ake*, a point, and *phyllon*, a leaf; referring to the sharply-pointed segments of the leaf.

A remarkable genus of *Umbelliferæ*, differing only by its curious habit and spinescent character from *Ligusticum*. *A. Colensoi*, a native of New Zealand, forms a circular bush five or six feet in diameter, of bayonet-like spines, having flowering stems six to nine feet high,

covered with very long spinous leaflets. Two species are known, both of which are called Spear Grass and Wild Spaniard by the settlers. Propagated by seeds or divisions in spring. Introduced in 1875.

A'cis. After *Acis*, a Sicilian shepherd. Nat. Ord. *Amaryllidaceæ*.

A genus of hardy bulbs closely allied to the Snowflake; propagated readily by offsets. They should have a sandy soil, and not be often divided.

Acme'na. A small genus of green-house evergreen shrubs of the Nat. Ord. *Myrtaceæ*. *A. ovata* has ovate leaves, which, along with the stems and petioles, are dark purple, giving the plants when making new growth a very striking appearance.

Acni'da. Water Hemp. Taken from *a*, privative, and *knide*, nettle; the plant being like a Nettle, but without stings. Nat. Ord. *Chenopodiaceæ*.

A. cannabina, the only species, is a coarse-growing, uninteresting plant, common in salt marshes on the coast from Massachusetts to the Carolinas.

Aconite. See *Aconitum*.

Aconite, Winter. A popular name for *Eranthis hyemalis*.

Aconitum. Aconite, Monkshood, Wolfsbane. From *Acone*, a town in Bithynia, where found. Nat. Ord. *Ranunculaceæ*.

Herbaceous perennials, chiefly natives of Europe, but partly of North America and Japan. They are all hardy, and are generally tall-growing, handsome plants, producing abundance of dark blue, purple or yellow flowers. They grow freely, and are good plants for the open border. They are readily increased by division of the roots, which are generally tuberous, or by seeds. All the species are more or less poisonous, the poison being strongest in the root. Like all plants which grow with tall, erect stems, and produce their flowers in terminal spikes, they are only suitable for growing in borders in large gardens, or for clumps on a lawn. The species may be divided into two kinds: those with the helmet like a monk's cowl, which are called Monkshood, and those which have an elongated conical helmet, and are called Wolfsbane.

Aco'ntias. A small genus of plants so named in allusion to the spots on the stem, which resemble those of a species of serpent, so called. The genus belongs to the *Caladium* tribe of the *Arum* family, and require the same treatment. Natives of Brazil. Syn. *Xanthosma*.

Acorus. Sweet Flag, Calamus. From *a*, privative, and *kore*, the pupil of the eye; referring to its medicinal qualities. Nat. Ord. *Aroideæ*.

A well-known genus of marsh plants, natives of the United States, Europe and Asia. *A. calamus* is the Sweet Flag, esteemed for its medicinal virtues. *A. gramineus variegatus* is a pretty species, with white-striped leaves forming handsome little tufts, very useful for hanging baskets, vases, &c., as well as for cutting.

Acotyledons. Plants having no cotyledons or seed-lobes, as in *Cuscuta*. In systematic botany applied to spore-bearing plants which do

not produce cotyledons, as Ferns and Mosses; also to spores themselves, which are embryos, without cotyledons.

Acrade'nia. Nat. Ord. *Rutaceæ*.

A neat, compact, evergreen green-house plant, introduced from Tasmania in 1845. *A. Franklinia* has pure white flowers, produced in great profusion in terminal clusters. Leaves fragrant, opposite, and trifoliate.

Acrocli'nium. From *akros*, top, and *kline*, a bed; referring to the open flowers. Nat. Ord. *Compositæ*.

This interesting annual is one of the most valuable of the class known as *Everlasting Flowers*, and is grown extensively for winter bouquets. The seeds should be started in the hot-bed and transplanted where they are to grow. Flowers should be picked as they begin to expand, and carefully dried in the shade. Introduced from Western Australia in 1854.

Acroco'mia. From *akros*, top, and *kome*, a tuft; referring to the way the leaves are produced. Nat. Ord. *Palmaceæ*.

A genus of gigantic Palms, natives of South America and the West Indies. Some of the species grow to the height of forty feet, with leaves fifteen feet in length, giving to the countries they inhabit a feature of exquisite grandeur. The young leaves are eaten as a vegetable, and the fruit, root, and stems are applied to various economic purposes. Some of the species are found in our green-houses, but are too large for general hot-house culture.

A'crogens. Plants increasing at the summit, as Ferns, etc.

Acrony'chia. From *akron*, tuft or summit, and *onux*, a claw, on account of the original species having an incurved point at the top of the petals. Nat. Ord. *Rutaceæ*.

A Cunninghami, the only described species, is a tall handsome shrub, bearing clusters of white flowers of an exquisite odor, resembling orange blossoms, combined with the aromatic warmth of ginger. The leaves abound in a resinous or oily fluid of a powerful turpentine-like odor. It requires to be grown in a warm house, and is propagated by cuttings. Introduced in 1838 from Moreton Bay.

Acrope'ra. From *acros*, the extremity and *pera*, a small sack; because of the saccate appendage at the apex of the labellum. Nat. Ord. *Orchidaceæ*.

A small genus of interesting plants from Mexico and Central America, producing their curious flowers plentifully in pendant bunches. *A. Loddigesii* is one of the more common species, and is a free-flowering plant of easy culture. None of the species take a very high rank among Orchids. This genus is included under *Gongora*, by some botanists.

Acro'phorus. From *akros*, summit, and *phoreo*, to bear. Nat. Ord. *Polypodiaceæ*.

A small genus of handsome green-house Ferns from Borneo and New Zealand. They are closely allied to *Davallia* and require the same treatment.

Acrophy'llum. From *akros*, summit, and *phyllon*, a leaf; referring to the way in which the leaves are produced at the summit of the branches above the flowers. Nat. Ord. *Cunoniaceæ*.

ACR

A small genus of very handsome green-house plants, that flower profusely in the spring. The flowers are small, white tinged with red, produced in dense whorls round the upper part of the stem and branches. They are natives of New Holland, introduced in 1836. Propagated by cuttings.

Acro'pteris. From *akros*, a summit, and *pteris*, a Fern. Nat. Ord. *Polypodiaceæ*.

This beautiful Fern, allied to *Asplenium*, is a green-house variety, readily propagated by division of the roots. It requires a light, loamy soil, with a liberal mixture of sand and leaf mould. A native of New Holland.

Acros'tichum. Supposed to refer to the beginning of a verse, on account of the back surfaces of the leaves being so lined as to resemble in some degree the commencement of lines in poetry. Nat. Ord. *Polypodiaceæ*.

An interesting genus of tropical Ferns, that succeed well in a mixture of loam and leaf mould. The species having long fronds, are admirably adapted for growing on blocks or in hanging baskets, and the dwarfer sorts do well in Wardian cases. Increased by division of roots, or by seed. First introduced from the West Indies in 1792. According to some botanists the genus now includes *Aconiopteris*, *Chrysodium*, *Egenolphia*, *Elaphoglossum*, *Gymnopteris*, *Olfersia*, *Polybotrya*, *Rhipidopteris*, *Soromanes*, *Stenochlæna* and *Stenosemia*.

Actæ'a. Baneberry. From *aktara*, the Elm; resemblance of the leaves. Nat. Ord. *Ranunculaceæ*.

A genus of hardy herbaceous perennials, of but little beauty; common in rich woods in the Northern States. The berries are poisonous.

Actini'dia. From *actin*, a ray; the styles radiate like the spokes of a wheel. Nat. Crd. *Ternstræmiaceæ*. A genus of ornamental, hardy, deciduous, climbing shrubs, with entire leaves and axillary corymbs of white flowers. *A. polygama* is a vigorous and elegant perfectly hardy climber, with white sweet-scented flowers much resembling the Hawthorn, followed by bunches of edible berries. It was introduced from Japan in 1870, and is propagated by seeds, layers or cuttings.

A'ctino'meris. From *aktin*, a ray, and *meris*, a part referring to the radiated aspect of the plants. Nat. Ord. *Compositæ*. Hardy ornamental plants, allied to *Helianthus*, with yellow Coreopsis-like flower heads; natives of this country, sometimes cultivated.

A'ctinio'pteris. From *aktin*, a ray, and *pteris*, a Fern; the fronds are radiately cut into narrow segments. Nat. Ord. *Filices*. A small genus of neat and distinct Stove Ferns. The fronds of *A. radiata*, grow three to five inches high, divided inwards from the margin and is a perfect miniature of the Fan Palm, *Livistona Chinensis*.

Aculeate. Furnished with prickles, as distinguished from spines.

Acuminate. A term applied to leaves or other flat bodies which narrow gradually till they form a long termination. If the narrowing takes place toward the base, it is so stated, as, acuminate at the base; if toward the point, the term is used without qualification.

Acute. Sharp pointed.

ADD

A'da. A complimentary name. Nat. Ord. *Orchidaceæ*.

A. aurantiaca, the only species, is a beautiful epiphytal Orchid, found in high latitudes in New Grenada. It has broad, evergreen foliage, and long terminal nodding racemes of orange-scarlet flowers, lasting a long time in perfection. It is a free-growing plant, and should have a cool, airy situation in the Orchid-house. It is increased by division. Introduced in 1844.

Adam and Eve. See *Aplectrum*.

Ada'mia. Named in honor of John Adam, some time Governor General of India. Nat. Ord. *Saxifragaceæ*.

A small genus of green-house evergreen shrubs, natives of China and the East Indies. *A. versicolor*, one of the most beautiful of the few known species, is a native of China, and forms a dwarf smooth-branched shrub, furnished with large opposite leaves, resembling those of *Hydrangea japonica*. The flowers are produced in a pyramidal panicle nearly a foot in diameter, whitish while in bud, but gradually change to purple and violet. Propagated by cuttings. Introduced in 1844.

Adam's Apple. The fruit of *Musa paradisiaca*.

Adam's Needle. See *Yucca*.

Adam's Needle and Thread. *Yucca filamentosa*.

Adanso'nia. Baobab Tree. Named in honor of *Michel Adanson*, a famous French botanist and author, born in 1727. Nat. Ord. *Sterculiaceæ*.

A. digitata (called Monkey Bread) is a native of Western Africa, and is also accredited to Egypt and Abyssinia. Previous to the discovery of the *Sequoia* in California, the Adansonia, or *Baobab*, as it is popularly called, was considered the largest tree in the world, some specimens being found thirty feet in diameter. At the height of twenty feet, the trunks separate into branches forty to fifty feet long and the size of great trees, with their remote branches touching the ground. The roots for a long distance are exposed, some of them measuring more than a hundred feet in length on the surface. How much longer they are, unexposed, could not readily be ascertained. The fruit is gourd-shaped, and is from nine to twelve inches long, and about four in diameter. The pulp is farinaceous and fibrous, and when ripe has a refreshing, acid taste. Eaten with sugar it is both pleasant and wholesome. The negroes on the western coast apply the trunks of these trees to a very extraordinary purpose. The tree is liable to be attacked by a fungus, which, vegetating in the woody part, without changing the color or appearance, destroys life, and renders the part so attacked as soft as the pith of trees in general. Such trunks are then hollowed into chambers, and within these are suspended the dead bodies of those to whom are refused the honor of burial. There they become mummies, perfectly dry, and well preserved, without further preparation or embalming, and are known by the name *giuriots*.

Adder's Mouth. The common name of the *Microstylis*, a small bulbous plant, common in moist woods southward.

Adder's Tongue. A name applied to the *Erythronium Americanum*, and also to the Fern, *Ophioglossum vulgatum*.

ADE

Adena'ndra. From *aden*, a gland, and *aner*, the stamen or male organ; referring to the aspect of the anthers. Nat. Ord. *Rutaceæ*.

A somewhat extensive genus of green-house evergreen shrubs from the Cape of Good Hope. Some of them are cultivated for their large terminal corymbs of bright pink flowers, which are produced in June. All the species are increased by cuttings of the young wood. Introduced in 1812.

Adenanthe'ra. The name is derived from *aden*, a gland, and *anthera*, an anther, in allusion to a gland on each anther. Nat. Ord. *Leguminosæ*.

A small genus of handsome tropical evergreen trees. *A. pavonia* grows to a great size in the East Indies, and yields a solid, useful timber, called Red Sandal wood. A dye is obtained by simply rubbing the wood against a wet stone; and this is used by the Brahmins for marking their foreheads after religious bathing. The seeds are of a bright scarlet color, and are used by the jewellers in the East as weights, each seed weighing uniformly four grains.

Adena'nthos. From *aden*, a gland, and *anthos*, a flower; referring to the glands on the flowers. Nat. Ord. *Proteaceæ*.

Ornamental evergreen pilose shrubs with red flowers, natives of New Holland. Propagated by cuttings. First introduced in 1824.

Adenoca'rpus. From *aden*, a gland, and *karpos*, fruit; referring to the glands on the fruit. Nat. Ord. *Leguminosæ*.

This genus is allied to *Cytisus*, and furnishes some remarkably handsome plants because of their profuse racemes of yellow flowers. *A. hispanicus* is a low, compact, rigid bush, remarkable for the number of its short lateral branches. It is very common on the hillsides of Southern Europe. *A. decorticans* is a beautiful evergreen shrub with bright yellow flowers, having the general appearance of Furze. It was introduced from Spain in 1883.

Adeno'phora. A genus of hardy herbaceous perennials, allied to *Campanula*. The flowers are bell-shaped, and produced in branching panicles. They are readily increased by seeds, but will not bear division, and dislike being removed. Flowers blue. Native of Siberia.

Ade'smia. An extensive genus of South American plants, belonging to the Nat. Ord. *Leguminosæ*. They are mostly plants of but little interest. *A. balsamifera*, a Chilian species, called Jarilla, is a plant of great beauty when in flower. It yields a balsam which has a very pleasant odor, perceptible at a great distance.

Adha'toda. Native name. Nat. Ord. *Acanthaceæ*.

A small genus of green-house shrubs, natives of India. The few species composing this genus were formerly included in *Justicia*. One of the more common species, *A. vasica*, was formerly called *Justicia Adhatoda*. *A. cydoniæfolia* produces its flowers in panicles at the point of every branch. They are of a rich purple color, the large lower lip having a white stripe in the centre. It is very showy when in bloom, and makes an excellent plant for training up pillars or rafters. They bear a close resemblance to the *Justicias*, and require the same treatment.

ADL

Adia'nteæ. A section of polypodiaceous Ferns, in which the receptacles to which the spore cases are attached are placed on the under surface of the indusium itself, so that the fructification is, as it were, upside down, and is hence said to be resupinate.

Adi'anto'psis. From *adiantum* and *opsis*, like; resembling the Maiden-hair. Nat. Ord. *Polypodiaceæ*.

A small genus of elegant little Ferns from South America, the West Indies, and Africa. *A. radiata*, one of the best known species, is common in the West Indies. The fronds rise about a foot high from a tufted crown, and radiate in a regular manner from a common center. The species are often seen in cultivation, on account of their small size and elegant character. Propagated from seed. Some authorities now place this genus under *Cheilanthes*.

Adia'ntum. Maiden-hair Fern. From *adiantos*, dry; the smooth foliage repelling rain-drops. Nat. Ord. *Polypodiaceæ*.

Of this extensive and much-admired genus of Ferns, this country furnishes but one variety, *A. pedatum*, our common Maiden-hair, which grows in moist woods in nearly every section. Taken up in early spring and transplanted into shady corners of our gardens, it grows readily, and is indispensable in the natural arrangement of flowers in vases or baskets. Some of the exotic species of this genus may safely be pronounced the most beautiful Ferns known, which is a very broad assertion, in view of the very many rare and beautiful plants to be found in this natural order. All doubts, however, of the truth of the assertion will be removed when we see a well-grown plant of *A. Farleyense* in the fern-house. This interesting plant is a native of Barbadoes, whence it was introduced in 1864. It is the most distinct and beautiful of all the Maiden-hair Ferns, and the most difficult to grow to perfection. It requires a warm, moist atmosphere. *A. gracillimum* and *A. cuneatum* are magnificent plants, and are grown in large numbers, the young plants, as well as the cut fronds, being used extensively in floral decoration. There are many other rare species under cultivation. The growing of this genus from spores has for a long time been practiced, and the several species, with the exception of *Farleyense*, have been increased at a rapid rate in this way. But getting new varieties from spores, after hybridizing some of the finer species, is a new and unexpected result that has been achieved in a most astonishing and satisfactory manner by F. Roenbeck, of Bayonne, N. J., who has not only given us several varieties, but one, *A. Roenbeckii*, which bears his name, that is, without exception, the most useful as well as the most graceful of any yet introduced. The fronds are erect, with a metallic luster, combined with the delicacy and grace of the finer species. It is well adapted for specimen culture, and is particularly useful in the arrangement of cut flowers, and when so used looks like a lace veil hung over the flowers. This variety was first exhibited in 1876.

Adlu'mia. Mountain Fringe. Dedicated by Rafinesque to Major Adlum, an American author. Nat. Ord. *Fumariaceæ*.

ADIANTUM CUNEATUM.

AGROSTIS VULGARIS (RED TOP GRASS).

AGAPANTHUS UMBELLATUS.

AGROSTIS NEBULOSA.

AGROSTEMMA.

AGERATUM MEXICANUM.

AGAVE VICTORIA REGINA.

AGAVE AMERICANA (CENTURY PLANT).

ALONSOA.

ALLIUM NEAPOLITANUM.

ALSTRŒMERIA.

ALOPECURUS PRATENSIS (MEADOW FOX-TAIL GRASS.)

ALFALFA OR LUCERNE (MEDICAGO.)

This beautiful climber is a hardy biennial, growing in moist woods in New York and the Alleghany Mountains of Virginia. It is commonly called Fumitory, Alleghany Vine, and various other local names. It grows readily from seed, which should be sown in May, near a trellis or arbor. The plants will flower freely, without further care, the following season.

Adnate. Grown to anything by the whole surface; when an ovary is united to the side of the calyx, it is adnate.

Ado'nis. Name of classical derivation. Nat. Ord. *Ranunculaceæ.*

Herbaceous plants with showy flowers, natives of Europe, and of easy culture in any soil. The most ornamental species are *A. vernalis*, the spring-flowering Adonis, a perennial with bright yellow flowers, which is quite hardy, and is easily increased by division of the root; and *A. autumnalis*, the common annual *Flos Adonis*, or Pheasant's Eye, with dark crimson flowers. The annual kinds should be sown in autumn, as they will stand the winter in the open air; or in February or March, as they are a long time in coming up.

Adventitious. A term used to denote some part or organ that is developed in an unusual position; as the leaf-buds that appear on various parts of the surface of the stem, instead of being confined, as is generally the case, to the axils of the leaves. Applied also to roots, etc.; for example, the Ivy throws out *adventitious* roots from along the stems, by which it clings to walls or trees for support.

Adverse. Opposite.

Æ'chmea. From *aichme*, a point; in reference to the rigid points on the calices, or flower envelopes. Nat. Ord. *Bromeliaceæ.*

A small genus of tropical plants, often epiphytal, growing on the trunks of trees in the dense forests. They have strap, or sword-shaped, leaves, and produce panicles of brilliant scarlet flowers. Propagated by division of the suckers or offsets. First introduced in 1844.

Ægi'ceras. From *aix*, a goat, and *keros*, a horn; alluding to the shape of the fruit. Nat. Ord. *Myrsinaceæ.*

Small trees with obovate entire leaves and white fragrant flowers. *Æ. fragrans* is a stout green-house evergreen milky shrub, flowering in April. Introduced from New Holland in 1824.

Æ'gilops. Goat's eye. Supposed to be useful for a disease of one corner of the eye; hence the name. Nat. Ord. *Graminaceæ.*

A genus of grasses allied to *Triticum*, or Wheat grass. It occurs wild in the South of Europe and parts of Asia. It has been held that the seeds of this plant may be changed into wheat by cultivation; and that the ancient worship of Ceres, which considered the fields of Enna and of Trinacoria as the cradles of agriculture, had its origin in this transformation of the native grass. Professor Latopie, of Bordeaux, affirms that, having cultivated the seed of the *Ægilops*, the plant has changed its generic character, and has made approaches to that of wheat. Other specific botanists have made the same assertion, giving the results of their various experiments. It is, however, but just to say that but little credit has been given to these statements. We prefer to believe wheat to have been a special creation, rather than to have evolved from an inferior species.

Æ'gle. Bengal Quince. From *Ægle* one of the Hesperides. Nat. Ord. *Rutaceæ.*

Æ. Marmelos, the only species, is a native of the East Indies, where it is highly esteemed for the fragrance of its orange-like flowers, and for its delicious fruit, which also, possesses an aperient quality which is particularly serviceable in habitual costiveness. Not only the fruit, but other portions of the plant are used for medicinal purposes; and a yellow dye is prepared from the rind of the fruit.

Ægopo'dium. Gout weed. Bishop-weed. An umbelliferous plant with smooth thrice ternate leaves and white flowers, propagating itself by creeping root-stocks, which, like our native bind weed are singularly vivacious, so that when once it gets established, it is very difficult to eradicate. A great pest in British and Continental gardens. A very pretty variegated variety is in cultivation, as a border plant.

Aeration. The exposure of the soil to the free action of the air, as essential to the growth of plants.

Aerial. Plants or parts of plants which grow entirely above the surface of the earth or water.

Ae'rides. From *aer*, the air; in reference to the power they have of living on air. Nat. Ord. *Orchidaceæ.*

A splendid genus of East Indian epiphytal Orchids, remarkable for their beautiful white, pink, or rose-colored, fragrant flowers, and for their rich evergreen foliage. The general appearance of these plants, their wonderful tenacity of life, the remarkable property they possess of imbibing the whole of their nutriment from the atmosphere, without the intervention of any kind of earth, and the elegance and rich perfume of their flowers, combine to make them objects of universal admiration. They require to be grown in a high temperature and a very moist atmosphere. The more popular species are of quite recent introduction.

Æschyna'nthus. From *aischuno*, to be ashamed, and *anthos*, a flower. Nat. Ord. *Gesneraceæ.*

A beautiful genus of tropical epiphytal plants. The species are chiefly found in tropical Asia and the East Indies, and may properly be classed with the most gorgeous green-house plants. They have mostly pendant stems, opposite fleshy leaves, and scarlet or orange-scarlet flowers. One of the finer species, *Æ. speciosus* is a native of Java. It is of sub-erect habit, with fascicles of about twenty erect, long-tubed flowers, of rich orange-yellow below and passing into scarlet at the top, with yellow and black markings. *Æ. grandiflorus*, has orange-scarlet flowers with a band of bright scarlet round the entrance of the tube. *Æ. longiflorus*, with bright crimson and *Æ. Lobbianus*, with scarlet flowers, both introduced from Java, are of the same general habit. All the species are admirably adapted for hanging baskets, and require to be grown in considerable heat and moisture. First introduced in 1845.

Æ'sculus. Horse Chestnut, Buckeye. From *esca*, nourishment; referring to the ground flour from the kernels of some species. Nat. Ord. *Sapindaceæ*.

A genus of hardy ornamental deciduous trees, too well known to need description. *Æ. Hippocastanum*, the common Horse Chestnut, is a native of Asia, introduced into our nurseries from Europe at an early day. *Æ. glabra* (Buckeye) is a large growing tree, common South and West, particularly in Ohio, whence the name Buckeye State. *Æ. flava*, the Sweet Buckeye, and *Æ. pavia*, the Red Buckeye, are shrubs or small trees, natives of Virginia, and West and South. *Æ. Californica* is a beautiful, large, spreading shrub, the most ornamental of the whole genus. Its flowers are rose-colored, in racemes about six inches long, and are produced in great abundance from June till July. All the species are propagated by seeds. See *Pavia*.

Æstivation. The manner of folding the calyx and corolla in the flower bud.

Æthione'ma. From *aitho*, to scorch, and *nema*, a filament; in reference to some burnt appearance in the stamens. Nat. Ord. *Cruciferæ*.

This is a beautiful genus of the Arabis family, but differs from the greater number of the Crucifers in light elegant habit and wiry stems, and usually glaucous leaves. They are mostly found on sunny mountains near the Mediterranean, particularly eastward, and are especially valuable for gardens, forming stronger and more free-flowering tufts in cultivation than in a wild state. *Æ. grandiflorum* forms a spreading bush about a foot high, from which spring numerous racemes of pink and lilac flowers. It is a true perennial, growing well in the ordinary border, but from its prostrate, spreading habit, it is best adapted for the rock-garden, when the roots may descend into deep earth, and the stems fall gracefully over the rocks. The species are easily raised from seed, and thrive well in ordinary sandy loam. The best known kinds are *Æ. coridifolium*, *pulchellum*, and *grandiflorum*.

Æthu'sa. Fool's Parsley. The name alludes to the acridity of the plants, and is derived from *aithusso*, to heat or make hot. Nat. Ord. *Umbelliferæ*.

Quite a hardy species of little beauty. The stem and leaves of *Æ. Cynapium*, are poisonous and contain a peculiar alkali called Cynopia.

African Almond. *Brabeium Stellatifolium.*

African Lily. See *Agapanthus.*

African Lotus. *Zizyphus Lotus.*

African Marigold. See *Tagetes erecta.*

African Oak and **Teak.** *Vitex Doniana.*

Aga'lmyla. From *agalma*, an ornament, and *hute*, a forest. Nat. Ord. *Gesneraceæ*.

A small genus of beautiful green-house or hot-house plants from the islands of the Eastern Archipelago. *A. staminea* is a very handsome plant, epiphytal in habit, creeping and rooting on the trunks of trees. It has very strong stems, large, fleshy, Gloxinia-like leaves, and axillary fascicles of from twelve to fifteen flowers each, tubular-shaped, two inches long, bright scarlet. Propagated by cuttings.

Agami'sia. From *aganos*, desirable; in reference to the beauty of these neat little plants. Nat. Ord. *Orchidaceæ*. *A. pulchella* is a very pretty and rare orchid, a native of Demarara. It blossoms at different times of the year and lasts two or three weeks in perfection. The flowers are white, with a blotch of yellow in the centre of the lip. *A. cærulea*, introduced from Brazil in 1876, has beautiful dark-blue flowers, the lip blotched with violet. They require a warm, moist temperature, and succeed best when grown on blocks of wood or cork.

Aganos'ma. From *aganos*, mild, and *osme*, scent of flowers. Nat. Ord. *Apocynaceæ*. A genus of shrubby climbing plants, with opposite leaves, and terminal corymbs of large funnel-shaped white, yellow, or purple flowers. Natives of India, they require a warm green-house and thrive best in a compost of loam, leaf-mould and sand. Propagated by cuttings.

Agapan'thus. From *agape*, love, and *anthos*, a flower. Nat. Ord. *Liliaceæ*.

The Blue African Lily, *A. umbellatus*, is a noble plant, with thick, fleshy roots, and retains its leaves all the winter. There is a variety with striped leaves. *A. albidus* has white flowers, but it does not differ from the common kind in any other respect. The African Lilies all require a loamy soil, enriched with rotted manure, and they should be fully exposed to the light. The plants are always large before they flower; and when the flower-stalks appear, the plant should be in a large pot, so that the roots may have plenty of room. They should be abundantly supplied with water, taking care, however, not to let any remain in a stagnant state about the roots. Thus treated, this plant will frequently send up a flower-stalk above three feet high, crowned with twenty or thirty flowers, which will open in succession. It flowers in summer, and forms a noble ornament to an architectural terrace, and is also a fine object on a lawn.

Agape'tes. From *agapetos*, beloved, in reference to the showy character of the plant. Nat. Ord. *Vacciniaceæ*. A genus of evergreen shrubs with alternate leathery leaves. Natives of India. Several species are in cultivation, one of the best of which *A. buxifolia*, has beautiful bright red flowers about an inch long. It forms an interesting and effective green-house plant.

Aga'ricus. Mushrooms. Derived from *Agaria*, the name of a town in Sarmatia. Nat. Ord. *Fungi*.

This, the most extensive genus in the vegetable kingdom, is divided into several groups. Some of the species are very beautiful in form and color. Many of them are poisonous and some of the species virulently so, while others notably *A. campestris* the common field Mushroom is not only edible, but is esteemed a great delicacy. See Mushroom.

Agathæ'a. Blue Daisy. From *agathos*, excellent; in reference to the beauty of the flowers. Nat. Ord. *Compositæ*.

A. cœlestis, a native of the Cape of Good Hope, is a neat green-house plant, somewhat resembling the Gazania in foliage and shape of flower. As it blooms profusely, and the color is a rare and beautiful shade of blue, which contrasts finely with the golden yellow

disk, it is much valued as an ingredient in winter bouquets. It is a neat plant, and the peculiar color (mazarine blue) is very unusual in this class of plants. Propagated by cuttings.

A'gathophy'llum. Madagascar Nutmeg. From *agathos*, pleasant, and *phyllon*, a leaf. Nat. Ord. *Lauraceæ*. *A. aromaticum* is a warm green-house evergreen shrub of economic value only. The fruit is aromatic, but encloses a kernel of an acrid, caustic taste, known as Madagascar Clove Nutmeg.

Aga've. American Aloe. Century Plant. From *agauos*, admirable, referring to the stately form in which some of them flower. Nat. Ord. *Amaryllidaceæ*.

This genus is described by B. S. Williams as follows: "They are noble, massive growing plants, and form magnificent ornaments in the green-house or conservatory; whilst, from their slow growth they do not rapidly get too large, even for a small green-house. Indeed some of the real gems of this genus are neat, compact-growing plants, seldom exceeding two feet in height. Besides being fine ornamental plants for indoor decoration, the larger growing kinds are unquestionably the finest objects for the embellishment of terrace walks, or surmounting flights of steps in the open air during the summer season, and also for plunging in rock-work, or about any rustic nooks in the pleasure grounds, as, in such situations, they are quite in keeping, and thrive admirably. As is well known, they attain maturity very slowly; but when this condition is reached, the plant sends up a flower-spike, and after perfecting this, dies." A number of the dwarfer growing species, such as *A. applanata*, *A. attenuata*, *A. Celsiana*, *A. filifera*, *A. Salmiana*. *A. Victoriæ Regina*, and many others, are much used in sub-tropical gardening, and for bedding out on lawns, etc., during summer. *A. Americana*, is a splendid decorative plant, a native of South America introduced to cultivation in 1640. The varieties with striped foliage are considered the most desirable as ornamental plants. It was at one time a prevailing idea that this plant only flowered once in a hundred years; but this is found now to be a popular error. If given sufficient heat, it will flower when ten or twelve years old. The flower stem rises from the center of the plant to a height of about thirty feet, bearing an immense number of yellowish-green flowers, after perfecting which the plant perishes. New plants are formed around the base of the old one in the form of suckers. It furnishes a variety of products; the plants form impenetrable fences; the leaves furnish fibers of various qualities, from that used in the finest thread to that in the strongest rope cables; the juice, when the watery part is evaporated, forms a good soap, and will mix and form a lather with salt water as well as fresh; a very intoxicating drink is also made from the juice, as well as other preparations of a similar nature; the leaves are made into razor-strops, and are also used in scouring all sorts of culinary utensils. Over one hundred species have been described, but according to Bentham and Hooker, not over fifty are sufficiently distinct to rank as such. They are

distributed over South America, Mexico, and the Southern States.

Agera'tum. From a not, and *geras*, old; in reference to the flowers being always clear. Nat. Ord. *Compositæ*. *A. Mexicanum*, the type of this genus is a well known occupant of our flower borders. It bears a profusion of lilac-blue flowers all season, and is very useful for cutting. Several very dwarf varieties of it have originated under cultivation which are very useful in ribbon and carpet bedding. A variegated form is also cultivated for its pretty foliage. Syn. *Cœlestina*.

Agglomerate. Collected into a heap or head.

Aglai'a. From *Aglaia*, one of the Graces. Nat. Ord. *Meliaceæ*.

A genus of evergreen trees or shrubs, having very small flowers, borne in axillary panicles. The leaves are showy and finely divided. It contains about nineteen species, natives of China, and the Malay and Pacific Islands. *A. odorata* has small yellow flowers, very sweet-scented, said to be used by the Chinese to scent their teas.

Aglamo'rpha. From *aglaos*, beautiful, and *morpha*, a form. Nat. Ord. *Polypodiaceæ*.

A. Meyeniana, the only species, is a beautiful herbaceous Fern, a native of the Philippine Islands. It is propagated by division or from spores, and requires the same treatment as *Polypodium*, under which genus it is included by some authors.

Aglaone'ma. From *aglaos*, bright, and *nema*, a thread; supposed to refer to the shining stamens. Nat. Ord. *Aroideæ*.

A genus of stove-house plants, allied to *Arum*, with entire leaves and white fragrant flowers.

Agnes, St., Flower. See *Leucojum*.

Agno'stus. A synonym of *Stenocarpus*, which see.

Ago'nis. From *agon*, a gathering, a collection; in allusion to the number of the seeds. Nat. Ord. *Myrtaceæ*.

A genus of evergreen shrubs or small trees, natives of Western Australia. The flowers are white, rather small, in dense globose axillary, or terminal heads. The species are still rare in cultivation, and will undoubtedly prove hardy south of Washington. Propagated by cuttings.

Agrimo'nia. Agrimony. A corruption of *Argemone*. Nat. Ord. *Rosaceæ*.

A small genus of yellow-flowered, weedy plants, common throughout the United States. The larger flowered, or common Agrimony, is a native of Europe, but has become pretty generally naturalized. They are plants of but little interest.

Agroste'mma. Rose Campion. From *agros*, a field, and *stemma*, a crown; referring to the beauty of the flower. Nat. Ord. *Caryophyllaceæ*.

A. coronaria is a hardy perennial, introduced from Russia in 1834. Suitable for border plants, their showy white and red flowers contrasting finely with shrubbery. Propagated by division of roots or by seeds. *A. cœli-rosea*, or Rose of Heaven, is a favorite annual species, with delicate rose, white or purple flowers. It should be grown in groups.

Agro'stis. Bent Grass, Red Top. This is the Greek name for all grasses, from *agros*, a field. Nat. Ord. *Graminaceæ.*

A well-known genus of grasses, including *A. canina*, the Rhode Island Bent Grass; *A. stolonifera*, the Creeping Bent Grass, and *A. vulgaris*, the common Red Top. These species have all been introduced from Europe, but are now thoroughly naturalized in this country. *A. pulchella* and *A. nebulosa* are both very delicate, feather-like annual grasses, valuable for bouquet-making and for winter decorative purposes.

Ague Root. A common name for *Aletris farinosa.*

Ague Tree. *Laurus Sassafras.*

Ague Weed, Indian. *Eupatorium perfoliatum.*

Aila'ntus. From *ailanto*, Tree of Heaven, referring to its lofty growth. Nat. Ord. *Xanthoxylaceæ.*

Deciduous trees of rapid growth, natives of China. They were at one time extensively planted as street trees, and should not now be so generally discarded, as they will thrive well in cities and barren soils, making a beautiful shade tree, as well as valuable timber. The only objection that has ever been made to them is the unpleasant odor of their flowers. That objection can be easily avoided. This tree is dicœcious, and is rapidly increased by root-cuttings. By taking cuttings from the female plant, the flowers of which are inodorous, they can be increased to any extent.

Ai'ra. Hair Grass. The Hair Grass is named from the Greek, and signifies to destroy; but why it has received this unwelcome name is apparently uncertain. Nat. Ord. *Graminaceæ.*

There are several species common to this country and Europe. *A. cæspitosa* is typical of the genus, a very handsome Grass, the flowers of which are well adapted for decoration, being very graceful. It will flourish in almost any situation, but prefers damp fields, where it forms large tufts, known as "hassocks," and as it is not eaten by cattle except when nothing else can be procured, a field in which it abounds has a singularly unsightly, and to farmers unwelcome appearance.

Air Plants. These are plants that grow on trees, or other objects, and not in the earth, deriving their nutriment from the atmosphere. The term was formerly, and is still to some extent, applied to epiphytal Orchids. There are, however, many other families of air plants. The class is to be distinguished from the various parasites that have no roots in the earth, but derive their nourishment directly from the plants on which they grow.

Aito'nia. In honor of *W. Aiton*, once Head Gardener at Kew. Nat. Ord. *Meliaceæ.*

A small and interesting evergreen shrub from the Cape of Good Hope, bearing pink flowers. Introduced in 1777.

A'jax. A subdivision of the genus *Narcissus*, including the common Daffodil, and other species having a long trumpet-shaped coronet to the flowers.

Aju'ga. Bugle. From *a*, privative, and *zugon*, a yoke; in reference to the calyx being one-leaved. Nat. Ord. *Labiatæ.*

A small genus of hardy annual and perennial herbaceous plants. *A. reptans* (common Bugle) has been introduced into the garden,

and given a position in massing and ribbon borders of plants for its dark-colored foliage. The species were at one time highly esteemed for the medicinal properties they were supposed to possess. "Ruellus writeth that they commonly said in France, howe he needeth neither physician nor surgeon that hathe Bugle and Sanicle, for it not only cureth woundes, being inwardly taken, but also applied to them outwardly."—*Gerarde.* They are propagated readily from seed.

Akaz'za. The name of an ordeal poison used in the Gaboon country, supposed to be the product of a species of *Strychnos.*

Ake'bia. The name it bears in Japan. Nat. Ord. *Lardizabalaceæ.*

A. quinata was introduced from China, in 1844, by Robert Fortune. It is a hardy climber, of rapid growth, suitable for large arbors or trellises, in sunny or shady situations. It will twine around old trees, completely covering the branches, from which it will hang in graceful festoons. The color of the flower is dark brown, and it is very sweet-scented. In a light, rich soil it will grow to the height of thirty feet. It is propagated readily by layering or cuttings.

Alatus. Furnished with a thin wing or expansion.

Albi'zzia. Named after an Italian. Nat. Ord. *Leguminosæ.*

A small genus of ornamental green-house plants, very like *Acacias*, to which they are often referred. The plant so well known as *Acacia lophantha* is placed under this genus.

Albu'ca. From *albus*, white, referring to the prevalence of white flowers in the genus (not a very happy allusion, though, because the flowers are mostly green). Nat. Ord. *Liliaceæ.*

This is a genus of but little beauty, closely allied to the *Ornithogalum*, introduced from the Cape of Good Hope about 1750. They are tender bulbous plants, easily cultivated in the green-house, grown in pots in light, sandy soil. They flower in May and June.

Albumen. The matter that is interposed between the skin of a seed and the embryo. It is of a farinaceous, oily or horny consistency, and surrounds the embryo wholly or in part, and affords nourishment to the young plant during the earliest stages of germination.

Alburnum. The white and softer part of wood, between the inner bark and heart-wood, commonly known as sap-wood; the young wood before it comes to a proper consistence.

Alchemi'lla. A genus of herbaceous annual or perennial plants, belonging to the natural order *Rosaceæ.* All the species have lobed leaves and inconspicuous yellow or greenish flowers. *A. vulgaris*, the common Lady's Mantle, is frequent in English woods and wet pastures.

Alder. See *Alnus.*

Alder, Black. The popular name for *Prinos verticillata.*

Alder, Red. *Cunonia Capensis.*

Alder, White. The popular name for *Clethra alnifolia.*

Ale-cost. An old English name for *Pyrethrum Tanacetum*, commonly known as *Balsamita vulgaris*, the Costmary of Gardens.

Ale'tris. Colic-root. Star-grass. From *aletron*, meal; referring to the powdery appearance of the whole plant. Nat. Ord. *Hæmodoraceæ*.

There are but two species included in this genus, both natives of the United States, and pretty generally distributed. *A. farinosa* is highly esteemed for its medicinal properties, and is a very pretty plant for the border. It is a herbaceous perennial, the leaves growing in a close tuft, from which arises a flower-stem from one to three feet high, terminating in a spiked raceme of small, white, oblong, bell-shaped flowers. Propagated by division or by seeds.

Aleuri'tes. From the Greek word, signifying flour, all the parts of the plant seeming to be dusted with it. Nat. Ord. *Euphorbiaceæ*.

A. triloba is a handsome evergreen tree, with small white clustered flowers. It is a native of the Moluccas and the Southern Pacific Islands, and is commonly cultivated in tropical countries for the sake of its nuts, which, when dried, are stuck on a reed and used as candles, and as an article of food in New Georgia. It is of easy culture, and is propagated freely by cuttings.

Aleurito'pteris. A genus of Ferns, now joined with *Cheilanthes*.

Alfalfa or **Lucerne** (*Medicago Sativa*). Though this has been a favorite forage plant in some parts of the Old World for hundreds of years, it is not surprising that in a country so widespread and diversified as the United States, a crop that is so valued in some localities is unknown in others.

The great value of Alfalfa is in its enormous yield of sweet and nutritious forage, which is highly relished by stock either when green or cured into hay. It will grow and yield abundantly in hot, dry sections, and on poor, light and sandy land, where no grasses can be grown, for it sends its roots down to enormous depths, they having been found in sandy soil 13 feet long; consequently it consumes food, moisture, and the leach of fertilizers from depths entirely beyond the action of drought or heat, and which have been for years beyond the reach of ordinary plants.

Alfalfa greatly enriches the soil even more than ordinary Clovers, as it derives a very large portion of nutritive material from the atmosphere. It aërates the land to a great depth, and a large portion of its great fleshy roots, equalling small carrots in size, annually decay from the outside and keep growing larger from the center, and are constantly increasing the fertility of the ground.

Alfalfa is not considered perfectly hardy in our more Northern States, yet experiments made by some of our Northern Agricultural Experimental Stations prove it of more value North than previously supposed.

The soil best suited for the growth of Alfalfa is that which is deep and sandy; hence the soil of Florida and many other portions of the cotton belt is eminently fitted for its culture. When Alfalfa is to be grown on a large scale, to get at the best results, the ground chosen should be high and level, or if not high, such as is entirely free from under water. Drainage must be as nearly perfect as possible—either naturally or artificially. This in fact is a primary necessity for *every* crop—unless it be such as is aquatic or sub-aquatic.

Deep plowing, thorough harrowing and leveling with that valuable implement, the "smoothing harrow," to get a smooth and level surface, are the next operations. This should be done in the Southern States from 1st to 20th October—or at such season in the fall as would be soon enough to ensure a growth of four or five inches before the season of growth stops. Draw out lines on the prepared land twenty inches apart (if for horse culture, but if for hand culture fourteen inches), and two or three inches deep. These lines are best made by what market gardeners call a "marker," which is made by nailing six tooth-shaped pickets six or eight inches long at the required distance apart to a three by four inch joist, to which a handle is attached —which makes the marker or drag. The first tooth is set against a garden line drawn tight across the field, the marker is dragged backwards by the workman, each tooth marking a line; thus the six teeth mark six lines, if the line is set each time; but it is best to place the end tooth of the marker in a line already made, so that in this way only five lines are marked at once, but it is quicker to do this than move the line. The lines being marked out, the seed is sown by hand or by seed-drill, at the rate of eight to twelve pounds per acre. After sowing—and this rule applies to all seeds if sown by hand—the seed must be trodden in by walking on the lines, so as to press the seed down into the drills. After treading in, the ground must be levelled by raking with a wooden or steel rake along the lines lengthways—not across. That done, it would be advantageous to use a roller over the land so as to smooth the surface and further firm the seed, but this is not indispensable. When seeds are drilled in by machine, the wheel presses down the soil on the seed, so that treading in with the feet is not necessary. After the seeds germinate so as to show the rows, which will be in from two to four weeks, according to the weather, the ground must be hoed between, and this is best done by some light wheel-hoe, if by hand, such as the "Planet, Jr." On light sandy soil, such as in Florida, a man could with ease run over two or three acres per day. The labor entailed in this method of sowing Alfalfa in drills is somewhat greater than when sown broadcast in the usual way of grasses and clover, but there is no question that it is by far the best and most profitable plan, for it must be remembered that the plant is a *hardy perennial*, and is good for a crop for eight to ten years. Moreover, the sowing in drills admits of the crop being easily fertilized, if it is found necessary to do so; as all that is necessary is to sow bone dust, superphosphates, or other concentrated fertilizer between the rows, and then stir it into the soil by the use of the wheel-hoe. Because Alfalfa flourishes on poor and worn out lands, it should not be thought unadapted to good soils. In the latter, its yield almost exceeds belief. At the New Jersey State farm, seed of it sown, April 28th, in drills, and the plants cultivated, had grown forty inches tall, when cut on July 7th, 70 days from sowing, yielding (green) $7\frac{3}{10}$ tons per acre; the second cutting made on August 18th, yielded (green) $8\frac{1}{10}$ tons per acre; the third cutting was made September 27th, and yielded (green) $4\frac{6}{10}$ tons per acre; a total of 20 tons of green

fodder per acre the first year sown, which would equal at least five tons of cured hay. If sown on light, dry soils during a dry spell, or if sown broadcast, not much, if any, crop can be expected the first year, as the roots have to get a vigorous hold of the soil; the second year it can (if sown under such conditions) be cut two or three times, but it is not until the third year that it develops into full vigor, and after that it yields magnificent crops for ten or fifteen years.

Alfalfa will not flourish on land where water *stands* a short distance below the surface, nor in heavy, sticky clays. It attains its highest perfection on mellow, well-drained or rolling land where water readily passes away.

A'lgæ. A large and important tribe of *Cryptogamia*, the greater part of which live either in salt or fresh water. They are related on the one hand to Funguses, and on the other to Lichens their distinctive characters being more easily derived from their respective habits, than from differences of structure. Some of the species, as the Dulse and Pepper Dulse, are edible and are used in Britain as a condiment, while the Carrageen or Irish Moss, besides its value in cattle-feeding when boiled and mixed with other nutritious matters, forms an excellent dessert something like curds when boiled in milk.

Algæ, best known as "Sea-weed," have long been used as manure by the farmers along the coasts of Long Island, New England, etc., immense quantities being thrown ashore in the fall of the year. It is generally composted with barn yard manure and is often used as a covering for Strawberries and Asparagus for winter.

Algaro'ba Bean, or Carob. The fruit of *Ceratonia Siliqua*, which see.

Alha'gi. The Arabic name of the plant. Nat. Ord. *Leguminosæ.*

A small genus of shrubby plants, with simple leaves and spiny flower-stalks, inhabiting Southern Asia and Western Africa. A manna-like substance is produced from some of these plants in Persia and Bokhara, and is collected by merely shaking the branches. The secretion is supposed by some to be identical with the Manna by which the Israelites were miraculously fed.

Ali'sma. Water Plantain. *A. Plantago var. Americana*, is a native aquatic with small white or rose-colored flowers, arranged in a loose, compound, many-flowered panicle.

Alisma'ceæ. A small order of aquatic or marsh plants, with three-petaled flowers, on leafless scapes, and simple, radical leaves. The genera best known are *Alisma*, *Butomus* and *Sagittaria.*

A'lkanet, or Hoary Puccoon. The common name of *Lithospermum canescens*; also, a name applied to the roots of *Anchusa tinctoria*, extensively used as a dye, which is also called "alkanet."

Allama'nda. Named in honor of *Dr. Allamand*, of Leyden. Nat. Ord. *Apocynaceæ.*

This genus consists principally of handsome climbing green-house shrubs. *A. Schottii*, a native of Brazil, produces immense numbers of large, funnel-shaped flowers, which are of a full yellow, with a deeper yellow throat. *A.*

nobilis, *A. Chelsoni* and other species are all most desirable flowering plants for green-house decoration. They delight in a warm, moist situation, and should have a light, fibrous soil. Propagated by cuttings. First introduced from Brazil in 1846.

Allanto'dia. From *allantos*, a sausage; in reference to the cylindrical form of the indusium. A genus of Ferns now reduced to one species, *A. Brunoniana*, which is a very pretty plant, with fronds one to two feet in length. It is a native of the Himalayas, at an elevation of 6,000 feet, and is of easy culture in the green-house. Syn. *Asplenium Javanicum.*

Alleghany Vine. See *Adlumia.*

All-Heal. *Valeriana officinalis.*

Alligator Apple. See *Anona palustris.*

Alligator Pear. See *Persea gratissima.*

Alligator Wood. The timber of *Guarea grandifolia*, a West Indian tree.

A'llium. From the Celtic *all*, meaning hot or burning; referring to the well-known qualities of the genus. Nat. Ord. *Liliaceæ.*

Of the one hundred and fifty species of this tribe, but few are considered ornamental; indeed, the family, probably from prejudice, has been much neglected, where many far less showy plants have found favor. *A. Moly* produces large trusses of golden yellow flowers in June. *A. Neapolitanum* is a fine species, bearing pure white flowers in a large umbel. The former is perfectly hardy, and worthy a place in the garden. The latter is tender, requiring the protection of the green-house. Propagated readily by offsets. The various species of *Allium*, as *Onion*, *Leek*, *Garlic*, *Chives*, etc., are described under their respective names.

Alloplec'tus. A small genus of interesting green-house shrubs, belonging to the order *Gesneraceæ*, and requiring the same treatment.

Alloso'rus. From *allos*, diverse, and *soros*, a heap; in allusion to the changing of the sori. Nat. Ord. *Polypodiaceæ.*

A small genus of very beautiful dwarf Ferns. *A. crispus*, a British Fern, sometimes called the Mountain Parsley Fern, is a beautiful plant for rockeries. Two or three exotic species are favorites in the green-house. They are propagated from spores.

Allspice. Carolina. *Calycanthus floridus.*

Allspice-Tree. See *Pimenta.*

Almond. See *Amygdalus communis.*

Almond, Double-Flowering, Dwarf. *Amygdalus nana*, which see.

Almond, Earth or Chufa. *Cyperus esculentus.*

Al'nus. The Alder. From *al*, near, and *lan*, the bank of a river; in reference to the situation where the Alder delights to grow. Nat. Ord. *Betulaceæ.*

An extensive genus of shrubs or small trees common throughout North America and Europe. The principal use of the Alder is for charcoal, which is highly valued in the manufacture of gunpowder.

Aloca'sia. A slight alteration of *Colocasia.* Nat. Ord. *Aroideæ.*

This name is applied to a section of the genus *Colocasia;* by some considered a distinct genus. Natives of India, the Indian Archi-

pelago, &c. *A. metallica* is a magnificent species from Borneo, producing very large oval leaves, having a rich bronze-colored surface, making it a conspicuous ornament for the hothouse. The leaves look like large polished metal shields. Many other species, some of them of great beauty, with large and handsomely variegated, usually peltate, leaves, are highly-prized occupants of our plant stoves.

A'loe. From *alloeh*, its Arabic name. Nat. Ord. *Liliaceæ*.

The name Aloe is so frequently applied in conversation to the American Aloe, or Agave, that many persons are not aware that the true Aloe is not only quite a different genus, but belongs to a different natural order, the American Aloe being one of the Amaryllis tribe, while the true Aloe belongs to the Lily tribe. The qualities of the two plants are also essentially different, the American Aloe abounding in starchy, nourishing matter, while every part of the true Aloe is purgative. The true Aloe also flowers every year, and the flowers are tube-shaped, and produced on a spike; while each plant of the American Aloe flowers but once, sending up an enormous flower-stem with candelabra-like branches and cup-shaped flowers. The true Aloes are succulent plants, natives of the Cape of Good Hope, and grow best in this country in green-houses or rooms, in a light, sandy soil. To this, when the plants are wanted to attain a large size, may be added a little leaf-mould. When grown in rooms, a poor soil is, however, preferable, as it keeps the plants of a smaller and more manageable size, and makes them less easily affected by changes of temperature. The colors of the flowers will also be richer when the plants are grown in poor soil. The drug called aloes is made principally from the pulp of the fleshy leaf of the *A. socotrina*, the flowers of which are red, tipped with green; but it is also made from several other species.

A'loe, Partridge-Breast. *Aloe variegata.*

A'loe, Pearl. *Aloe margaritifera.*

A'loes-Wood. See *Aquilaria.*

Alo'na. From *nola*, a little bell (letters transposed); in allusion to the shape of the flowers. Nat. Ord. *Nolanaceæ*.

A genus of pretty evergreen shrubs, *A. Cœlestis*, has pale-blue, large flowers; an excellent plant for growing out-of-doors during summer. Propagated by cuttings. Introduced from Chili in 1845.

Alonso'a. The Mask Flower. Named after Zanomi Alonso, a Spaniard, by the authors of *Flora Peruviana*. Nat. Ord. *Scrophulariaceæ*.

The species are low under-shrubs, or herbaceous plants, natives of Peru, and two of them —*A. incisifolia* and *A. linearis*—are very ornamental, either in the green-house or grown as annuals in the open border during summer. They thrive well in any light, rich soil, and are readily increased by seeds or cuttings. They are very desirable for flower-gardens, on account of the brilliant scarlet of their flowers; and where there is no green-house, the plants should be raised from seeds sown on a hot-bed in February, or struck from cuttings early in spring, and brought forward in a frame or pit, and turned out into the open air in May.

Alopecu'rus. The generic name of the Foxtail Grass

Aloy'sia. Lemon Verbena. Named in honor of *Maria Louisa*, Queen of Spain. Nat. Ord. *Verbenaceæ*.

The only known species of this genus is *A. citriodora*, introduced from Chili in 1784, and formerly called *Verbena triphylla*, or the Lemon-scented Verbena. Under this name it is generally sold, and is a universal favorite, readily propagated from cuttings, and planted in the open border in May. If taken up after a light frost and put in a cold frame or cool cellar during winter, the plants will keep well; and, planted out in spring again, they make large and pleasing shrubs. The leaves, when dried, will retain their odor for many years. Syn. *Lippia citriodora.*

Alphabet-plant. *Spilanthes acmella.*

A'lpine. Strictly speaking, this term refers to the higher part of the Alps, in contradistinction to "mountainous," which designates the middle portion of the higher Alps, or tops of inferior mountains. Plants found in very high elevations are called Alpine Plants.

Alpine Azalea. The popular name for *Loisleuria procumbens.*

A'lpine Plants. This very interesting class consists mostly of plants natives of high elevations, and, although they are naturally exposed to the full influence of the sun and wind, they require in our hot, dry summers shade and and shelter more than exposure. Wherever a Rock Garden or Rockery is constructed, a portion of it should be devoted to the culture of Alpines, for as a rule they flourish better on a properly-constructed Rockery than in any other position, because thorough drainage is effected, and the long, fine roots can run down in the crevices where the soil is cool and moist. It should, however, be so arranged that all aspects are secured, shady and sunny, fully, or in a degree only. Many Alpines are easily grown in the ordinary border in a sheltered, well-drained situation. Excavate to the depth of eighteen inches, put in a layer of stones or rubble six inches deep, and fill up with a mixture of good fibrous loam and leaf-mould, adding sand enough to keep it porous. When the desired subjects are firmly planted, the surface may be covered with small stones or rough gravel, which, while allowing the rain to penetrate the soil, checks evaporation, keeping it moist and cool, as well as giving the surface an appearance more in keeping with the plants.

Alpi'nia. In memory of *Prosper Alpinus*, an Italian botanist. Nat. Ord. *Zingiberaceæ*.

A genus of tropical herbaceous perennials, mostly natives of the East Indies, requiring to be grown in great heat and moisture. *A. vittata* is an ornamental-leaved species of small growth. The plant throws up numerous stems from the underground rhizomes, bearing lance-shaped leaves, pale green in color, striped with creamy white. *A. alba* bears a fruit known as Ovoid China Cardamoms; others, as *A. nutans*, are remarkable for the exceeding beauty of their flowers. They are increased by division of their roots.

Alseuo'smia. From *alsos*, a grove, and *euosmia*, a grateful odor; alluding to the powerful fragrance of the flowers. Nat. Ord. *Caprifoliaceæ*.

A small genus of highly-glabrous shrubs, with greenish or red flowers, and generally

alternate leaves. *A. Macrophylla*, the only species yet introduced to cultivation, has small, very fragrant, dull-red flowers, sometimes streaked with white. It forms a neat green-house shrub, and is propagated by cuttings of the half-ripened wood. Introduced from New Zealand in 1884.

Alsike. See *Trifolium hybridum.*

Also'phila. From *alsos*, a grove, and *phileo*, to love; in reference to the situation best suited to the plants. Nat. Ord. *Polypodiaceæ.*

This genus contains some of our most beautiful green-house Tree Ferns. *A. Australis*, the type, is a native of Australia, and one of the most ornamental of the order. In the ordinary green-house it thrives finely, producing its graceful fronds from three to four feet long and one and a half wide. There are several species, all tropical, and all worthy a place in the fern-house. They are increased by division or from spores. Introduced in 1833.

Alstrœme'ria. In honor of *Baron Alstrœmer*, a Swedish botanist. Nat. Ord. *Amaryllidaceæ.*

This is a genus of tuberous-rooted plants, with beautiful flowers, natives of South America, and capable of being grown to a high degree of perfection in the hot-house, green-house or open air, according to the species. The soil which suits all the Alstrœmerias is a mixture of sandy loam and leaf-mould, or well-rotted manure. Of all the hot-house species, *A. Ligtu*, with white and scarlet flowers, is the most difficult to flower; but by giving it abundance of water during the summer, and a strong heat in December, it will flower in February: and one plant will scent a whole house with fragrance like that of Mignonette. *A. edulis* is another hot-house species, which climbs to the height of ten or twelve feet, and, like all other climbers, thrives best when turned out into the open border. Propagation is effected by separation of the tubers, or by seeds; the latter is apt to produce new varieties, as they are by no means constant from seed.

Alternanthe'ra. Alluding to the anthers being alternately fertile and barren. Nat. Ord. *Amaranthaceæ.*

This useful little green-house perennial for ribbon beds and edgings is a native of Buenos Ayres, introduced in 1732. Propagated readily from cuttings. The variegated-leaved varieties, of which new and striking sorts are constantly being introduced, alone are cultivated, the flowers being inconspicuous. A recent variety, *A. paronychioides major*, is now known as the Rainbow-plant.

Alternate. Placed on opposite sides of an axis, on a different level, as in alternate leaves.

Althæ'a. Marsh Mallow. From *altheo*, to cure; in reference to its medicinal qualities. Nat. Ord. *Malvaceæ.*

There are many annuals in this family, some of them of much merit. The Marsh Mallows are hardy perennials, and formerly much used as border plants. *A. rosea*, the common Hollyhock, is one of our most splendid ornamental biennials. It grows to the height of from five to eight feet, and there are varieties of almost every color, including white, and purple so deep as to be almost

black. The seeds of the Hollyhock, should be sown in March or April. When the plants come up, they should be thinned out, and then suffered to remain till September, when they should be transplanted to the place where they are to flower. Introduced from China in 1573. The hardy shrub commonly known as Althæa, is *Hibiscus Syriacus.*

Alum Root. The common name of *Heuchera Americana*, the roots of which are very astringent.

Aly'ssum. Derived from *a*, privative, and *lyssa*, rage; from a notion among the ancients that the plant possessed the power of allaying anger. Nat. Ord. *Cruciferæ.*

Dwarf hardy perennials, or sub-shrubby plants, with cruciferous flowers. *A. saxatile* is very suitable for rock-work, or the front part of a flower border, and forms a beautiful spring-blooming bed in the flower garden. Flowers produced in large clusters, of a deep, pure yellow. It is increased by cuttings and seeds. The herbaceous species are propagated by division, the sub-shrubby ones by cuttings. Vigorous two-year-old plants are the best for flowering; the others are unimportant. The plant commonly called Sweet Alyssum is not of this genus; it is *Koniga maritima*, which see.

Amarabo'ya. The native name. Nat. Ord. *Melastomaceæ.*

A small genus (three species) of evergreen shrubs, natives of New Grenada. The branches are thick, bluntly four-angled, with large, prominently nerved leaves, green above and reddish-carmine beneath. The white or carmine flowers are borne in terminal cymes, and are very showy. Introduced in 1887.

Amarantha'ceæ. An extensive order of herbs or (rarely) shrubs with inconspicuous apetalous flowers, almost in all cases of a scarious or shrivelled texture. The majority of this order are weeds, though many of the species of *Amaranthus* and *Gomphrena* (Globe Amaranth) are beautiful border plants and are well known.

Amaranth Globe. See *Gomphrena.*

Amara'nthus. Amaranth. Derived from *a*, not, and *miaraino*, to wither; in reference to the length of time some flowers retain their color. Nat. Ord. *Amaranthaceæ.*

Ornamental foliaged plants, of an extremely graceful and interesting character, producing a striking effect, whether grown for the decoration of the conservatory or the out-door flower garden. If the seeds are sown early in a warm hot-bed and planted out the last of May or in June, in rich soil, they make exceedingly handsome specimens for the center of beds, or mixed flower or shrubbery borders. Most of the varieties are natives of the East Indies, and were introduced into England about 1600. The well-known *A. tricolor*, or "Joseph's Coat," is one of the most beautiful of ornamental-leaved plants. *A. caudatus*, "Love lies Bleeding," is another showy species, and *A. salicifolius*, "The Fountain Plant," makes a lovely specimen for lawn decoration or for the centre of a "foliage bed."

Amaryllida'ceæ. A large Natural Order, consisting for the most part of bulbous plants, but occasionally forming a tall, cylindrical, woody stem, as in the genus *Agave.* They

differ from Irises in having six introrse stamens, and from Liliaceous plants in their ovary being inferior. A few species of *Narcissus* and *Galanthus* are found in the north of Europe and the same parallels. As we proceed south they increase. *Pancratium* appears on the shores of the Mediterranean, and on our own Southern coasts; *Crinum* and *Pancratium* in the West and East Indies; *Hæmanthus* is found for the first time, with some of the latter, on the Gold Coast; *Hippeastra* show themselves in countless numbers in Brazil and across the whole continent of South America; and, finally, at the Cape of Good Hope the maximum of the order is beheld in all the beauty of *Hæmanthus*, *Crinum*, *Clivia*, *Cyrtanthus* and *Brunsvigia*. A few are found in New Holland, the most remarkable of which is *Doryanthes*. Poisonous properties occur in the viscid juice of the bulbs of *Buphane toxicaria* and *Hippeastrum;* those of *Leucojum vernum*, the Snowdrop, and Daffodil and other kinds of *Narcissus*, are emetic. Nevertheless, the *Agave*, or American Aloe, as it is called, has an insipid, sweet juice. Others are detergent, and a few yield a kind of arrow-root. Between 300 and 400 species are known.

Amary'llis. The name of a nymph celebrated by the poet Virgil. Nat. Ord. *Amaryllidaceæ*.

Bulbous plants, chiefly natives of the Cape of Good Hope and South America, but which have been increased in number tenfold by hybrids and varieties raised in England and on the Continent. All the kinds are eminently ornamental, and they are all of easy culture, the great secret being to give them alternately a season of excitement and a season of repose. To do this effectually, the plants should be abundantly supplied with water and heat, and placed near the glass when they are coming into flower, and water should be withheld from them by degrees when they have done flowering, till they have entirely ceased growing, when they should be kept quite dry and in a state of rest. When in this state they may be placed in any obscure part of a green-house where it is dry, and of a temperature not under forty or fifty degrees. If kept in such a situation during winter, some kinds may be turned out into a warm border in spring, where they will flower; and if the season be fine, they will renew their bulbs in time to be taken up before the approach of frost. The chief value of these plants, however, is to produce flowers in the winter season which they readily do if they are kept dry and dormant during the latter part of the summer and autumn. Indeed, by having a large stock of these bulbs, a regular succession of flowers may be procured during every month in the year. When the dormant bulbs are intended to be brought into flower, they should be freshly potted in sandy loam and leaf-mould, and put in a hot-house or hot-bed, the heat beginning at fifty degrees, and ascending to sixty or seventy degrees; and when the leaves appear, they should be abundantly supplied with water. Where seeds are wanted the watering must be continued, though somewhat less abundantly, after the flowers have faded, till the seeds are ripe; and when these are gathered, they ought to be sown immediately in light, sandy loam, and placed in a frame, or near the glass, in a moist part of the hot-house. If the young plants are potted off as soon as they are an inch or two in height, and shifted frequently in the course of the growing season, they will attain a flowering size in from fifteen to twenty months. The pots in which these and all other bulbs are grown ought to be thoroughly drained by a handful or more of potsherds (broken pots) laid in the bottom of each pot, and covered with turfy loam, and the mould used should also be turfy, in order the more freely to admit the passage of water. Our long and warm summers enable us to cultivate many of these beautiful bulbs in the open air, merely protecting the roots in the winter in the same manner as those of the Dahlia. See *Hippeastrum*.

Amary'llis formosissima. A synonym of *Sprekelia*, which see.

Amaso'nia. Named in honor of *Thomas Amason*, an American traveller. Nat. Ord. *Verbenaceæ*. A genus of South American shrubs found chiefly in Brazil; closely allied to *Clerodendron*, from which they differ chiefly in habit. *A. calycina*, better known as *A. punicea*, is particularly striking, in having a series of the richest Poinsettia-like, vermilion-crimson, spreading bracts, arranged along the entire length of the racemes, which are a foot long. These bracts are four inches in length, and remain in perfection fully two months. Syn. *Taligalea*.

Ambro'sia. The botanical name of Ragweed, Bitterweed, etc.

Amela'nchier. June Berry, Shad Berry, Service Berry. From *Amelanchier*, the popular name of one of the species in Savoy. Nat. Ord. *Rosaceæ*.

A. Canadensis (the only American species) and its numerous varieties are low trees, common in the woods in the Northern States, remarkable for their numerous white flowers, which appear about the middle of April, completely covering the tree before the foliage or flowers of the neighboring trees have commenced their growth. The foliage resembles that of the Pear, and changes to a bright yellow in autumn. The fruit is a dark-purple berry, ripe in July or August, and has an agreeable flavor.

American Aloe. *Agave Americana*, which see.

American Centaury. The popular name for *Sabbatia*.

American Columbo. See *Frasera Carolinensis*.

American Cowslip. See *Dodecatheon Meadia*.

American Cranberry. See *Oxycoccus macrocarpus*.

American Cress. *Barbarea præcox*.

American Frog's Bit. *Limnobium spongia*.

American Ivy. *Ampelopsis quinquefolia*.

American Pitcher Plant. See *Sarracenia*.

American Wood Lily. See *Trillium*.

Amhe'rstia. In honor of the Rt. Hon. Countess Amherst and her daughter Lady Sarah Amherst; the zealous friends and promoters of every branch of natural history, but especially of Botany. Nat. Ord. *Leguminosæ*.

A. nobilis, the only species is an East Indian tree, said to be one of the most magnificent

blooming trees in existence, bearing in Spring large racemes of vermilion-colored flowers diversified with three yellow spots. The Burmanese name of the plant is *Thoca*, and handfuls of the flowers are offered before the images of Buddha. The tree is to be found in some of the larger English collections; but requiring so much space it is rarely grown.

Ami'cia. This pretty Leguminous green-house perennial is valuable on account of its flowering late in the fall. Flowers yellow splashed with purple, branches and petioles pubescent. Introduced from Mexico in 1826.

Ammo'bium. From *ammos*, sand, and *bio*, to live; in reference to the sandy soil in which it thrives. Nat. Ord. *Compositæ*.

Pretty annuals of hardy character from New Holland, producing white everlasting flowers. The seed may be sown in the open border, in almost any situation, between the middle of March and the end of May.

Ammobro'ma. From *ammos*, sand, and *bromos*, food; a name given by Dr. Torrey to a leafless plant of parasitic habit, native of Northern Mexico. The plant has the habit of an *Orobanche*, the scaly roots being buried in the sand, its roots parasitic on the roots of an unknown plant. Colonel Grey, the original discoverer of this plant met with it in the country of the Papigo Indians, a barren, sandy waste, where rain scarcely ever falls but "where Nature has provided for the sustenance of man, one of the most nutritious and palatable of vegetables." The plant is roasted upon hot coals, and ground with mesquit beans and resembles in taste the sweet potato, "but is far more delicate."

Ammo'charis. A genus of *Amaryllidaceæ*, usually included in *Brunsvigia*.

Ammo'phila. Beach Grass. From *ammos*, sand, and *phileo*, to love; in allusion to its native habitat. Nat. Ord. *Graminaceæ*.

A genus of coarse growing, reed-like grasses common on the sea-shores of this country and Europe. *A. arundinacea*, Syn. *Calamagrostis Arenaria*, is the best known species; as an agricultural grass it is of no value, but its value as a natural sand-builder cannot be overestimated; many thousand acres of land on various parts of our coast are preserved from being overwhelmed with the drifting sand solely by its agency. It seems to have been provided for this special purpose, having very strong rhizomes, or creeping roots, from 30 to 40 feet long, with many small tubers, about the size of peas, which prevent the drifting of the sand from the action of the wind and waves thus forming a barrier against the encroachments of the ocean.

In speaking of the importance of this grass in protecting our coasts, Flint, in his book on grasses says,—"The town of Provincetown, once called Cape Cod, where the pilgrims first landed, and its harbor, still called the harbor of Cape Cod,—one of the best and most important in the United States, sufficient in depth for ships of the largest size, and in extent to anchor three thousand vessels at once, owe their preservation to this grass. To an inhabitant of an inland country, it is difficult to conceive the extent and the violence with which the sands at the extremity of Cape Cod are thrown up from the depths of the sea, and

left on the beach in thousands of tons, by every drifting storm, These sand-hills when dried by the sun, are hurled by the winds into the harbor and upon the town. Beach grass is said to have been cultivated here as early as 1812. Before that time, when the sand drifted down upon the dwelling-houses—as it did whenever the beach was broken—to save them from burial, the only resort was to wheeling it off with barrows. Thus tons were removed every year from places that are now perfectly secure from the drifting of sand. Indeed, were it not for the window-glass in some of the oldest houses in these localities, you would be ready to deny this statement; but the sand has blown with such force and so long against this glass, as to make it *perfectly ground*."

Congress appropriated, between the years of 1826 and 1839, about twenty-eight thousand dollars, which were expended in setting out beach-grass near the village of Provincetown, for the protection of the harbor. Other appropriations have since been made, which, together with the efforts of the town committee, whose duty it is to enter any man's enclosure, summer or winter, and set out the grass, if the sand is uncovered and movable. By this means they are now rid of sand-storms, which were once the terror of the place, and the coast appears a fertile meadow.

Amo'mum. From *a*, not, and *momos*, impurity; in reference to its supposed quality of counteracting poison. Nat. Ord. *Zingiberaceæ*.

This genus of aromatic herbs furnishes the Grains of Paradise and the Cardamom Seeds, which are aromatic and stimulant. The plants grow readily in the green-house, and are propagated by division of the root. Introduced in 1820 from the East Indies.

Amo'rpha. False Indigo. From *a*, not, and *morpha*, form; in reference to the irregularity of the flowers. Nat. Ord. *Leguminosæ*.

A small genus of large, spreading shrubs, natives of North America. The leaves are compound, resembling the Locust, only the leaflets are finer. The flowers are dark-purple or violet, spangled with yellow, disposed in long panicles on the tops of the branches. *A. fruticosa* is a very ornamental shrub for the lawn, and is readily propagated from suckers, which are produced in abundance. *A. canescens* is a small-growing species, common in the Western and Southern States. It has received the local name of Lead Plant, on account of the white, hairy down with which it is covered.

Amo'rphopha'llus. From *amorphos*, disfigured, and *phallos*, a mace; form of spadix. Nat. Ord. *Aroideæ*.

These plants were formerly in the genus *Arum*, from which they are distinguished by their spreading spathes. They are natives of India and other parts of tropical Asia, where they are cultivated for the abundance of starch that is found in their root-stocks. Most varieties are ornamental plants for the green-house or garden. *A. Rivieri*, called the *Umbrella Plant*, is particularly so, having large, solitary decompound leaves three to five feet in diameter, on a thick, tall, marbled stem, very ornamental, either as a solitary plant or in groups on the lawn. After planting, the first appearance is the flower stalk, which rises to the

AMARYLLIS BELLADONNA.

AMMOBIUM.

AMARYLLIS FORMOSISSIMA.

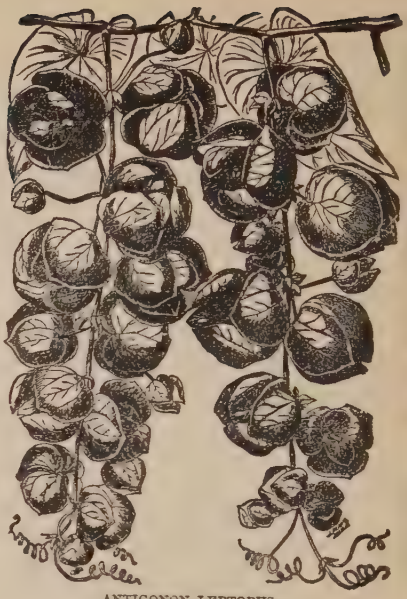
AMPELOPSIS VEITCHII.

AMARYLLIS VITTATA HYBRIDA.

ANEMONE CORONARIA.

AMARANTHUS TRICOLOR.

AMARANTHUS SALICIFOLIUS.



ANTIGONON LEPTOPUS.

ANEMONE FULGENS.

ANEMONE SYLVESTRIS.

ANAGALLIS.

ANEMONE JAPONICA.

AMARANTHUS GIBBOSUS.

height of two feet. As it expands, the fetor it exhales is overpowering and sickening, and so perfectly resembles that of carrion as to induce flies to cover the club of the spadix with their eggs. Propagated by offsets.

Amorphous. Without definite form.

Ampelo'psis. Woodbine. From *ampelos*, a vine, and *opsis*, resemblance: in reference to its resemblance to the Grape vine. Nat. Ord. *Vitaceæ*.

A. quinquefolia is well known by its common names of Virginia Creeper and Five-leaved Ivy. Its flowers have no beauty, but it is worth cultivating as an ornamental plant, from the brilliant scarlet and orange which its leaves assume in autumn, and which look particularly well at that season, when intermingled with those of the common Ivy, from the fine contrast they afford. The plant is of very rapid growth in any kind of soil, and it is propagated by layers or cuttings. The Virginia Creeper is one of our finest indigenous climbers. It grows very rapidly, attaches itself firmly to wood or stone buildings, or to the trunks of old trees, and soon covers these objects with a fine mantle of rich foliage. Nothing can be more admirably adapted than this plant for concealing and disguising the unsightly stone fences which are so common, and so great a deformity in many parts of the country. *A. tricuspidata* (syn. *A. Veitchii*), with its sub-variety *A. t. Royalii*, is one of the most valuable of hardy climbing plants, and is now planted in immense quantities. It was first extensively used in this country in Boston, Mass., where it is now to be seen covering some of the finest public and private buildings in the city. It clings with great tenacity to wood, as well as brick or stone, and in summer the leaves lapping over each other resemble a coat of mail, and form a dense sheet of rich, glossy green, changing in autumn to the most gorgeous shades of crimson, scarlet and yellow. It is also used largely on rocky and shaly railroad cuts and embankments, where its clinging tendency helps greatly to keep the rocks from dropping on to the track. It is perfectly hardy, and is propagated by cuttings, layers, or most generally from seeds. Introduced from Japan in 1868.

Ampely'gonum. The name is an allusion to the grape-like fruit. Nat. Ord. *Polygonaceæ*.

This interesting species from China is one from which the finest quality of indigo is obtained. It is an herbaceous perennial, obtained readily from seed.

Amphicarpæ'a. Hog Pea Nut. From *amphi*, both, and *Karpos*, a fruit; in allusion to the two kinds of pods; those of the upper flowers being scimitar-shaped, three to four-seeded; those of the lower, pear-shaped, fleshy, usually ripening but one seed. These lower pods bury themselves in the ground after fertilization. Nat. Ord. *Leguminosæ*.

Ornamental annuals, with herbaceous twining stems, of easy culture. Allied to *Wistaria*.

Amphi'come. From *amphi*, around, and *Kome*, hair; in allusion to the structure of the seeds. Nat. Ord. *Bignoniaceæ*.

This genus consists of two species of very elegant perennial herbs, natives of the temperate regions of North-western India. *A. Emodi* is a remarkably handsome plant, and well deserves a place in choice collections. It is about one foot high, and the flowers, which are large for the plant, stand erect when expanded. The fruits are about the length and thickness of a small quill, and their seeds are provided with a tuft of hairs at each end, a circumstance which gave rise to the name.

Amplexicaul. Stem-clasping; as when the base of the leaf surrounds the stem, as in *Cestrum auriculatum*, *Lonicera*, etc.

Amso'nia. In memory of *Charles Amson*, a celebrated traveler. Nat. Ord. *Apocynaceæ*.

A small genus of herbaceous perennial plants, with beautiful blue flowers produced in terminal panicled clusters. The several species are natives of the United States. *A. Tabernæmontana*, one of the more beautiful species, is common on low grounds in the Southern and Western States.

Amy'gdalus. Almond. From *amysso*, to lacerate; in reference to the fissured channels in the stone of the fruit; but some suppose from a Hebrew word signifying *vigilant*, as its early flowers announce the return of spring. Nat. Ord. *Rosaceæ*.

A. nana is the common Flowering Almond of gardens, of which there are several varieties, the double white and double pink alone being desirable. Native of Russia. Introduced in 1683. Propagated readily by suckers. *A. communis* bears the sweet, and *A. amara* the bitter Almonds of commerce. They are supposed to be natives of Western Asia, and are mentioned in sacred history as among the best fruits of the land of Canaan. The Almond is plentiful in China, in most Eastern countries, and also in Barbary. It is extensively cultivated in Italy, Spain and the South of France. The several varieties, such as hard, soft or paper shelled, have all originated from *A. communis*.

Amyrida'ceæ. With the appearance of Oranges, and sometimes with the dotted leaves of that order, these plants differ in their fruit, forming a shell whose husk eventually splits into valve-like segments. The tropics of India, Africa and America exclusively produce the species. Their resinous juice is of great importance, forming an ingredient of frankincense and other preparations demanding a fragrant combustible matter.

Anacanthous. Spineless.

Anacardia'ceæ. When trees or bushes have a resinous, milky, often caustic juice, dotless leaves, and small, inconspicuous flowers, with an ovary containing a single ovule, suspended at the end of an erect cord, it is pretty certain that they belong to this order, of which more than 400 species are described, inhabiting the tropics both north and south of the equator, but not known to occur in Australia. *Pistacia* and some kinds of *Rhus* inhabit temperate latitudes. Among the products of the order are the Mango fruit, and that called in the West Indies the Hog Plum; the nuts named Pistachios and Cashews, the Black Varnish of Burmah and elsewhere, Mastic, Fustic, etc. These varnishes are extremely acrid, and produce dangerous consequences to persons who use them incautiously.

ANA

Anaca'rdium. From *ana*, like, and *kardia*, the heart; in reference to the form of the nut. Nat. Ord. *Anacardiaceæ.*

Ornamental evergreen trees, natives of the East and West Indies, remarkable for their beautiful, fragrant flowers, and for their fruit, known as the Cashew-nut. The trees are too large for introduction into the green-house.

Anacy'clus. A genus of *Compositæ* comprising about ten species of hardy or half-hardy annual herbs, natives of Southern Europe and Northern Africa. *A. radiatus purpureus*, a very pretty and free-flowering hardy annual, is the only species in general cultivation, and thrives well under ordinary cultivation.

Anaga'llis. Pimpernel. From *anagelao*, to laugh; fabled to possess a virtue to remove sadness. Nat. Ord. *Primulaceæ.*

A genus of pretty dwarf annual and biennial plants. The former have given place to the many seminal improvements of the the latter, insomuch as to be rarely met with. They are universal favorites for planting in the beds of the flower garden, where their numerous blue or red flowers, expanded whenever the sun shines, are very effective. They are propagated by seeds or cuttings. When seed is desired, the branch or plant on which it is growing should be taken entire, a little before the autumn frosts begin, and hung up in a dry, sunny place, such as before the windows of a shed, allowing the pods to remain upon it until wanted in the spring for sowing as it requires a long time to become properly ripened; afterwards it vegetates freely if sown in a gentle hot-bed. The garden varieties are hybrids. The species under cultivation were introduced from Southern Europe in 1830. *A. arvensis*, the common Pimpernel, is plenty in waste, sandy places in the United States, having been introduced from Europe and become thoroughly naturalized.

Analogy. Resemblance to a thing in form, but not in function, or in function, but not in form. Corresponding with a thing in many points, but differing in more, or in points of more importance. Thus the flowers of *Potentilla* and *Ranunculus* are analogous.

Anami'rta. A genus of plants inhabiting Ceylon, Malabar, and the Eastern Isles of India, and belonging to the natural order *Menispermaceæ.* The most important, if not the only plant of this genus, is the *A. cocculus*, the plant which produces the seeds known as *Cocculus Indicus*, which were formerly used in the adulteration of malt liquors; it is also used to poison fish. It is a climbing plant, with ash-colored corky bark; not in cultivation.

Anana'ssa Pineapple. From *nanas*, the Guiana name. Nat. Ord. *Bromeliaceæ.*

A. sativa, the common Pineapple, is universally acknowledged to be one of the most delicious fruits in existence. More than three hundred years ago it was described by Jean de Lery, a Huguenot priest, as being of such excellence, that the gods might luxuriate upon it, and that it should only be gathered by the hand of Venus. It is a native of Brazil, and was first introduced into Europe in 1555, having been sent there by André Thevet, a monk, from Peru. The plant is perennial, not unlike the *Aloe*, but the

AND

leaves are much thinner, and of a hard fibrous texture, with numerous short, sharp spines on the edges; the variegated form is highly prized as one of the most valuable plants for decorative purposes. The fruit varies like most other species, there now being nearly fifty varieties in cultivation.

Anasta'tica. From *anastatis*, resurrection, in reference to its hygrometrical property. Nat. Ord. *Cruciferæ.*

An annual plant, indigenous to the Egyptian deserts, and called the Rose of Jericho. When full grown it contracts its rigid branches into a round ball, and is then tossed about by the wind. When it alights in water, or damp ground, the branches relax and open out, as if its life were renewed; hence its name of *Resurrection Plant.* Among the superstitious tales told of it is, that "it first bloomed on Christmas Eve, to salute the birth of the Redeemer, and paid homage to His resurrection by remaining expanded until Easter." This curious annual can readily be grown from seed, but will not stand the severity of our winters; they can, however, be taken up and kept dry in a house. When wanted to expand, put them in a saucer of water.

Anceps. Two edged, as the stem of an Iris.

Ancho'manes. A remarkable and beautiful stove aroid allied to *Amorphophallus. A. Hookeri*, has a pale purple spathe appearing before the leaf which when fully developed is much divided and toothed. Introduced from Fernando, Po., in 1832.

A'nchovy Pear. See *Grias.*

Anchu'sa From *anchousa*, a cosmetic paint made from one of the species; used for staining the skin. Nat. Ord. *Boraginaceæ.*

Hardy herbaceous plants, suitable for deep shrubbery borders or any unfrequented place. Most of the species have purple flowers.

Ancylo'gyne. From *ankylos*, curved, and *gyne*, a female; the pistil is curved. Nat. Ord. *Acanthaceæ.*

A small genus of tropical under-shrubs, with terminal spikes or racemes of showy flowers. *A. longiflora.* from Guayaquil, is a valuable species for the green-house. It produces large, drooping panicles of rich purple, tubulose flowers, two inches long, and of a most attractive character. Propagated by cuttings. Introduced in 1866.

Andrew's (St.) Cross. *Ascyrum Crux Andreæ.*

Andro'gynous. Producing male and female flowers on the same plant, or on the same spike or head.

Andro'meda Kill Calf. A classical name, after the daughter of Cepheus and Cassiope, king and queen of Æthiopia. Nat. Ord. *Ericaceæ.*

A. Mariana, Stagger-bush, so common on the plains of Long Island, is a beautiful representative of this genus, one much sought after in Europe, where it is considered one of the finest American plants. They are beautiful shrubs, growing about two feet high, with leaves similar to those of the privet; flowers white, in spikes or racemes three to eight inches long, produced in June. They are conspicuous throughout the season on account of their form and foliage. The foliage is said to poison lambs and calves.

AND

Andropo'gon. Beard grass. A genus of grasses of but little value, either for agricultural purposes, or as objects of interest in the garden. They have the widest geographical range; several of the species are common on our coasts, growing in dry sandy soils.

Andro'sace. From *aner*, a man, and *sakos*, a buckler, in reference to the resemblance of the anther to an ancient buckler. Nat. Ord. *Primulaceæ*.

The species forming this genus (which is nearly allied to the *Primula*) are elegant little plants from the Alps. They consist of annuals, biennials, and perennials, all perfectly hardy, and well adapted for rock-work on partially exposed spots. Propagated by cuttings, or from seeds.

Aneile'ma. A genus of green-house perennials belonging to the Nat. Ord. *Commelynaceæ*.

They are generally of a trailing or creeping habit and are useful for hanging baskets, etc. Natives of New Holland and China. Flowers blue.

Ane'mia. From *aneimon*, naked; in reference to the naked inflorescence. Nat. Ord. *Polypodiaceæ*.

An extensive genus of tropical Ferns. There are numerous species in the West Indies and South America, some of which are of an ornamental character, and are much prized in collections. *A. adiantifolia* is one of the most beautiful. The genus is more interesting to the botanist than the florist. Propagated by spores or division.

Anemidi'ctyon. Included now with the genus *Anemia*.

Anemo'ne. Wind Flower. From *anemos*, the wind; inhabiting exposed places. Nat. Ord. *Ranunculaceæ*.

The species are showy flowering plants, valued for their hardy nature, and also because they will flower at any required season, according to the time the roots are kept out of the ground. The roots of *A. coronaria* are solid, flattened masses, closely resembling ginger. They should be planted in the garden as early in the spring as possible, in very rich soil and in partial shade. When the tops are dead, take up and store in a dry, airy place, or in boxes of dry sand until the planting season. For indoor cultivation they can be planted at any time in very rich soil in pots or boxes. The prevailing colors are red, white and blue; flowers double or semi-double. *A. Japonica* is one of the most beautiful of garden flowers giving a profusion of bloom from August till November, and even later if protected. The flowers of *A. Japonica alba* are two to three inches across, pure white, with a centre of deep lemon-colored stamens, and are invaluable for cutting. Introduced from Japan in 1844. One of the earliest spring flowers is *A. nemorosa*, the white Wind Flower of our woods. *A. pulsatilla* and its varieties, with whitish, violet and purple flowers, are known in English gardens as *Pasque Flowers*.

Ane'thum. See *Dill*.

Angels' Eyes. *Veronica Chamædrys*.

Angels' Trumpets. A popular name for the flowers of *Brugmansia suaveolens*.

Ange'lica. The name was given in reference to the supposed angelic medicinal virtues of some species. Nat. Ord. *Umbelliferæ*.

One of the species, *A. Curtisii*, is common in moist places, from Pennsylvania southward. The "intrinsic virtues" that it was once supposed to possess are entirely lost, its great virtue now consisting in its efficacy as a trap for earwigs. If the stem be cut in short pieces and thrown among plants, those pests will creep into the hollow stems, and their destruction is simple and easy.

ANI

Ange'lica-tree. See *Aralia spinosa*.

Angelo'nia. From *angelon*, its local name in South America. Nat. Ord. *Scrophulariaceæ*.

A genus of very handsome herbaceous perennials, growing from one to three feet high, and producing dense terminal racemes of deep violet colored and blue flowers. Natives of South America; propagated by cuttings of the young shoots. Introduced in 1846.

Angio'pteris. From *aggeion*, a vessel, and *pteris*, a wing. Nat. Ord. *Polypodiaceæ*.

A small genus of noble tropical ferns, common in Ceylon, India and the islands of the Eastern Archipelago. It is a remarkably handsome genus, but the plants are too large to be of use in the green-house.

Angræ'cum. From *angurek*, the Malayan name for air plants. Nat. Ord. *Orchidaceæ*.

An extensive genus of tropical Orchids, embracing a number of classes that are mere weeds and a few very rare and beautiful species. Among the latter is *A. sesquipedale*, a magnificent plant, a native of Madagascar, where it grows in great profusion, covering trees from top to bottom. The stems are three to four feet high, the foliage about a foot long, dark, shining green; flowers six inches in diameter, ivory white, with a tail from ten to eighteen inches long. Unlike many of this order, the plants flower when quite small. The flowers have a powerful fragrance, particularly at night. There are about forty species, nearly all natives of tropical or South Africa and the Mascarene Islands.

Angulo'a. In honor of *Angulo*, a Spanish naturalist. Nat. Ord. *Orchidaceæ*.

A small genus of very remarkable terrestrial Orchids, inhabiting the forests of tropical America. They have broad, ribbed leaves, short, leafy scapes, bearing a single large, fleshy flower, white, yellow, or spotted with crimson, on a pale yellow ground. There are several of the species under cultivation. They are increased by division. Introduced in 1845.

Angu'ria. One of the Greek names for the Cucumber. Nat. Ord. *Cucurbitaceæ*.

A genus of climbing plants allied to *Momordica*. They have a somewhat four-angled fruit, and some of the species are well worth cultivating. Natives of South America.

Anigoza'nthus. From *anoigo*, to expand, and *anthos*, a flower; in reference to the branching expansion of the flower-stalks.

A curious and handsome genus of *Hæmodoraceæ* from the Swan River district of Australia, including some very distinct and peculiar species. They are perennial tufted-growing plants, with erect stems, clothed with short, thick, persistent, velvety down, which, as it contrasts with the rather large, yellow or dark purple flowers, makes them desirable plants for green-house decoration.

ANI

Animated Oats. See *Avena.*

Anise. *Pimpinella anisum.*

Aniseed Tree. See *Illicium.*

Annuals. These include all plants which spring from the seed, flower and die within the course of a year. Many, however, which are not strictly of annual duration, but which are sown every year, in preference to housing the roots over winter, are generally classed under the head of Annuals. To produce the best results where such seeds are to be sown in the open border, the soil should be enriched with stable manure or other fertilizer, just as for a crop of vegetables or fruits; thoroughly dug, and raked level and smooth. The location for nearly all kinds of Annual flowers should be free from shade, though many sorts will succeed well where they get sunlight for half the day only. Hardy Annuals are those which require no artificial aid to enable them to develop, but grow and flower freely in the open air. All such may be sown in the open ground as soon as the soil is dry enough in spring to work. Tender Annuals are generally of tropical origin, and should not be sown in the vicinity of New York until the first week in May. Indeed, the best rule for all sections of the country, from Maine to Florida, is not to sow the tender kinds until such time as the farmers begin to plant Corn, Melons and Cucumbers. Many seeds of Annuals may be sown thickly and transplanted, thinning them out sufficiently to allow the plants to develop and exhibit their true character. Successive sowings of many of the showy species will be found to prolong their flowering season. They are usually sown in rows from six to twenty-four inches apart, or in circular patches of from one to two feet in diameter, each circle being from one to two feet apart, according to the growth of the variety. But whether sown in rows or in circular patches, the soil should be first loosened, so that the seed may be covered from one quarter of an inch to one inch in depth. After the seed is sown, shake over it fine soil, sufficient to cover the seeds, lighter or heavier according to their size. It is a good plan to place a label in the centre of each circular patch or at the end of each row, so as to mark where the seed has been sown, for in nearly all soils there are the seeds of weeds, which spring up often quicker than the flower seeds do; therefore it is necessary to know exactly where the seeds have been sown, so that the weeds can be pulled out or hoed up, and not crowd and smother the young seedlings. Some of the more tender Annuals require to be started in the green-house or hot-bed, and, after being potted off into small pots, and gradually hardened off, planted out where they are to remain.

Annular. Having a ring-like form.

Anœ'ctochi'lus. From *anoiktos*, open, and *cheilos*, a lip; the apex spreading. Nat. Ord. *Orchidaceæ.*

These admired little plants have small, white, rather inconspicuous flowers, but the want of beauty here is fully compensated for, in the rich and lovely markings of the leaves, which are covered with a gold network on a chocolate-colored or olive-green velvet like ground. They should be potted in a mixture of leaf-mould, sphagnum and silver sand, and a bell-glass kept continually over them, in the warmest part of the hot-house, in order to assimilate their present condition with their native one in the hot, humid jungles of the East, whence they have been derived. First introduced from Java in 1836.

ANO

Anomalous. Irregular, unusual, contrary to rule; as where a plant is very unlike the great majority of those to which it is most nearly allied.

Anomathe'ca. From *anomos*, singular, and *theca*, a capsule or seed pod. Nat. Ord. *Iridaceæ.*

Interesting little bulbous-rooted plants from the Cape of Good Hope. *A. cruenta* is useful for planting in masses, as it produces its blood-colored flowers in great profusion. They may be increased to almost any extent from seed, and the young plants will bloom the same season if sown in a gentle heat about the early part of March, and afterward removed to the open air.

Ano'na. Custard Apple. From *Menona*, its Banda name. Nat. Ord. *Anonaceæ.*

A South American and West Indian genus of shrubs and trees, where several of the species are cultivated for the sake of their fruits. *A. muricata*, the rough Custard Apple, is a middle-sized tree, growing abundantly on the savannahs in Jamaica, and bearing a large, oval fruit of a greenish yellow color, covered with small knobs on the outside, and containing a white pulp, having a flavor compounded of sweet and acid, and very cooling and agreeable. It is, however, too common to be much esteemed by the wealthier people, though it is much sought after and relished by the negroes. The odor and taste of the whole plant is similar to that of the black currant. This fruit is called by the natives Sour-sop. *A. squamosa* is a low-growing tree or shrub, common in both the East and West Indies. The fruit is nearly the size of the head of an artichoke, scaly, and of a greenish yellow color. The rind is strong and thick; but the pulp is delicious, having the odor of rose-water, and tasting like clotted cream mixed with sugar. It is, like many other fruits, said to have a much finer flavor in the Indian Archipelago than in the West Indies. The local name for this fruit is Sweet-sop. *A. cherimolia*, a South American species, is known as the Cherimoyer in Peru, where it is accounted one of their best fruits. The tree which produces this fruit has a trunk about ten feet high; the leaves are oval, and pointed at both ends; the flowers are solitary, very fragrant, and of a greenish color; the fruit is large, heart-shaped, rough on the outside, and greyish-brown, or nearly black, when ripe. The flesh, in which the seeds are contained, is soft, sweet and pleasant, and highly esteemed both by natives and foreigners. *A. palustris* yields the Alligator Apple, which fruit is shining and smooth in appearance, sweet and not unpleasant to the taste; but it is a strong narcotic, and therefore not generally eaten. The wood of the Alligator Apple tree is so soft and compressible, that the people of Jamaica call it cork-wood, and employ it for stoppers.

Ano'pterus. From *ano*, upward, and *pteron*, a wing; in reference to the seeds, which are winged at the apex. Nat. Ord. *Saxifragaceæ.*

ANS

A. glandulosa, the only species introduced into our green-houses, is a very beautiful shrub, remarkable for its large, handsome leaves, and axillary panicles or spikes of large white and pink flowers. Introduced from Van Diemen's Land in 1846. Propagated by cuttings.

Anse'llia. In honor of *Mr. Ansell*, the botanical collector who accompanied the ill-fated Niger expedition. Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids. *A. Africana* is a very beautiful plant, found growing on oil-palm trees in the island of Fernando Po. It has a tall stem resembling the sugar cane; broad, strap-shaped leaves, and large, drooping panicles of greenish flowers, blotched with purple. The plant flowers in January, and keeps in perfection for several months. Propagated by division. Introduced in 1844.

Antenna'ria. From *antennæ*, feelers; in reference to the downy heads of the seeds. Nat. Ord. *Compositæ.*

A genus of herbaceous perennials, widely disseminated throughout this country and Europe. Some of the species are used as bedding plants. *A. Margaritacea*, a native species, popularly known as Pearly Everlasting, is a favorite garden plant in Europe

Anterior. Placed in front, or outwards.

A'nthemis. Chamomile. From *anthemon*, a flower; in reference to the great number of flowers produced. Nat. Ord. *Compositæ.*

The genus of plants to which the *Chamomile* belongs, the flowers of which are much valued as a tonic, and for other medicinal properties. *A. tinctoria* furnishes a yellow dye. *A. Pyrethrum*, the Pellitory of Spain, is a pretty little perennial, with large white flowers, stained with lilac on the back. Miller raised this plant in a rather curious way in 1732, finding its seeds among some Malaga raisins to which they had adhered.

Anthe'ricum. From *anthos*, a flower, and *herkos*, a hedge; in reference to the tall flower stems. Nat. Ord. *Liliaceæ.*

A. Liliastrum, a very pretty hardy herbaceous plant, has broadish grassy leaves, and a flower stalk one and a half to two feet high, bearing many large, pure white, sweet-scented flowers, marked on each segment with a green dot. This is commonly called St. Bruno's Lily. *A. vittatum variegatum*, a species of recent introduction, from the Cape of Good Hope, has foliage of a bright grassy green color, beautifully striped and margined with creamy white. In variegation and habit it closely resembles *Pandanus Veitchii*, but is of more rapid growth and easy of cultivation. It has a hardy constitution, not as against cold, but as against the dry atmosphere and gases of the drawing-room, which makes it a valuable plant for the conservatory or for filling in baskets, jardinieres, or rustic designs. The method of propagating this species is both interesting and peculiar. Buds or short shoots are formed on the flower stems, which, put in as cuttings in the ordinary way, root rapidly. It is also propagated by seeds or division of roots. Introduced from the Cape of Good Hope in 1824.

Antheri'dia. The reproductive organs in cryptogamic plants, analogous to anthers in flowering plants.

ANT

Antholy'za. From *anthos*, a flower, and *lyssa*, rage; in reference to the opening of the flower like the mouth of an enraged animal. Nat. Ord. *Iridaceæ.*

A pretty genus of Cape bulbs, like the Anomatheca, but of stronger habit. They should be grown in light, rich earth, and have the protection of a frame, or some other covering, in winter, to exclude frost. Scarlet and orange are the prevailing colors of the flowers. Introduced from the Cape of Good Hope in 1759. Propagated by offsets.

Anthospe'rmum. Amber Tree. From *anthos*, a flower, and *sperma*, a seed. Nat. Ord. *Rubiaceæ.*

An ornamental evergreen shrub, from the Cape of Good Hope. *A. Æthopicum* is an interesting plant, with verticillate spikes of green and white flowers, thriving best in peat, loam and sand. Increased by cuttings.

Anthoxa'nthum. Sweet-scented Vernal Grass. From *anthos*, a flower, and *xanthus*, yellow. Nat. Ord. *Graminaceæ.*

A small genus of grasses found in nearly all the temperate portions of the globe. *A. odoratum*, the best known species, is a native of Europe, but has become thoroughly naturalized in this country, so much so that it is generally supposed indigenous. This is one of the earliest spring grasses, as well as one of the latest in autumn, and is almost the only grass that is fragrant. It possesses a property said to be peculiar to this species, known as *coumarin*, which not only gives it its aromatic odor, but imparts it to other grasses with which it is cured. Professor Johnstone says the fragrant resinous principle which occurs in this grass is the same which gives fragrance to the Tonka Bean, to the Faham Tea of the Mauritius, and to the Melilotus Alba. The vapor of *coumarin* is stated to act powerfully on the brain, and it is supposed by many that hay fever, to which many persons are liable, may be owing to the presence of this substance in unusual quantities during the period of hay-making. This grass possesses but little value of itself, as its nutritive properties are slight; nor is it much relished by stock of any kind. A slight mixture of it with other grasses is sometimes used because of its early growth.

Anthri'scus. Chervil. Derivation of name uncertain, but said to have been given by Pliny. Nat. Ord. *Umbelliferæ.*

A small genus of mostly uninteresting plants, common throughout Europe. There are but two species under cultivation. *A. cerefolium*, the common Chervil, an annual plant indigenous to various parts of Europe, is sometimes naturalized in and around old gardens. It rises to nearly two feet in height, the leaves are of a very delicate texture, three times divided, and the flowers, which are of a whitish color, appear in June. The tender leaves are much used in soups and salads, and those of a curled variety in garnishing. It is easily grown from seed, which should be sown early in May. *A. bulbosus* (syn. *Chærophyllum bulbosum*), the tuberous-rooted Chervil, is a native of France, where it is cultivated to some extent as a vegetable. In size and shape the root attains the size of a small carrot. It is outwardly of a grey color, but when cut the flesh is white, mealy, and by no means

unpleasant to the taste. When boiled the flavor is intermediate between that of the chestnut and potato, in consequence of which it has been recommended by English horticulturists for cultivation as a substitute for the latter root.

Anthu'rium. From *anthos*, a flower, and *oura*, a tail; referring to the inflorescence. Nat. Ord. *Aroideæ*.

This very large genus of stove and greenhouse plants, natives of Central and Tropical America, for the most part growing upon trees or in their forks, is remarkable both for the peculiar inflorescence, and often noble and beautifully veined and colored leaves, and is distinguished in structure from all the European members of the family in the flowers being hermaphrodite. Of those species most admired for their flowers, *A. Andreanum* and *A. Scherzerianum*, are the most noticeable. The singular form and intense coloring of the flowers, together with the gracefully-curved foliage, and long duration of the flowers, render them most valuable plants for the decoration of the warm green-house. *A. Splendidum*, *A. Regale*, *A. Crystallinum*, and many other beautiful species are grown for their magnificent foliage and are indispensable in a collection of stove plants.

Anthy'llis. From *anthos*, a flower, and *ioulos*, down; literally downy flower. Nat. Ord. *Leguminosæ*.

A genus of trailing herbs or shrubs, annuals and perennials. About twenty species are known, chiefly from the countries bordering on the Mediterranean Sea, most of which are uninteresting plants. *A. vulneraria*, is a native of Great Britain, and is frequently met in dry pastures near the sea. The leaves are large, of a bluish tinge and downy. The flowers are yellow, and grow in crowded heads, mostly in pairs. Its popular name is Kidney Vetch, or Lady's Fingers. *A. Barba-Jovis*, is an evergreen shrub, a native of the South of Europe. It has pinnate leaves, and yellow flowers, and the whole plant has a silvery appearance, from which it has derived its name of Jupiter's Beard and the Silver-bush. This is a very handsome shrub, but not hardy north of the Carolinas.

Antia'ris. Upas Tree. From *antja*, its Java name. Nat. Ord. *Artocarpaceæ*.

A. toxicaria is the fabled Upas Tree of Java, which furnishes a deadly poison in the form of a milky juice that exudes when slightly bruised or cut. The exaggerated accounts, that no other plants, or animals, or birds could live near the tree; that the death penalty was satisfied if the criminal would cut from the tree a branch or collect some of its juices, were effectually dispelled by Mr. Davidson, author of *Trade and Travel in the Far East*, who, with a number of friends, climbed up into the tree, took lunch, smoked their cigars, and enjoyed a few hours socially in its branches. The Upas has undoubtedly derived its evil reputation chiefly from its having been found growing in the celebrated valley of Java, where, through volcanic agency, there is a constant evolution of carbonic acid gas, fatal to air-breathing animals, and where both man and beast frequently fall victims to this invisible danger. "As if to prove the saying that reality is more strange than fiction, at least in botany, the very nearest plant in affinity, to this deadly poisonous tree, is the Cow Tree of South America, whose milky juice is as wholesome as that of an 'Alderney,' and that the Bread Fruit Tree is also closely allied to the Upas."

Antigo'non. From *anti*, against or opposite, and *gonia*, an angle. A splendid genus of green-house climbing plants, belonging to the Nat. Ord. *Polygonaceæ*.

A. leptopus, a native of Nicaragua, is a magnificent climber for the stove-house, rivalling the *Bougainvillea* in the color and abundance of its flowers. The chief attraction of the flowers is afforded by the sepals, which are half an inch long, of a bright rose color. As the flowers are produced in such great profusion, the plant in its season of flowering presents a brilliant and extremely showy appearance. Its discoverer, Dr. Seeman, writes respecting it: "I am well acquainted with the contents of our gardens and the vegetation of most parts of the world, but I have no hesitation in giving it as my deliberate opinion that there is no more graceful or beautiful climber than *Antigonon leptopus*."

Antigra'mme. From *anti*, like, and *gramma*, writing. Alluding to the arrangement of the sori. Nat. Ord. *Polypodiaceæ*.

This genus is composed of two species of tender ferns, natives of Brazil. *A. Brasiliensis*, is a simple-fronded Fern, with something of the habit of the Bird's-nest Fern, *Asplenium Nidus*, but, in a mature state of a glaucous opaque green-color, and remarkable in the young plants, for having a broad band of silvery-gray on each side of the central midrib of the frond, giving it a variegated appearance. Propagated by seeds. Introduced in 1780.

This genus is now included under *Scolopendrium*, by some authors.

Antirrhi'num. Snapdragon. Derived from *anti*, similar, and *rhin*, nose. The flowers of most of the species resemble the snout of some animal. Nat. Ord. *Scrophulariaceæ*.

Annual and perennial plants, natives of the middle and south of Europe, and of which one species, *A. majus*, the common Snapdragon, is in every garden. There are many varieties of this species, the finest of which, *A. m. caryophylloides*, has the flowers striped like those of a flaked Carnation. All the species of Snapdragon grow in any soil that is tolerably dry, and they are readily increased by cuttings; for though they produce abundance of seeds, yet the varieties can only be perpetuated with certainty by the former mode of propagation. The beautiful carnation-like variety will, indeed, very seldom produce striped flowers two years in succession from the same root; and thus a person who has purchased a plant with beautifully-striped flowers will generally have the mortification, the second year, of finding it produce nothing but flowers of the common Snap-dragon, unless cuttings have been made from the young shoots of the plant, and the old root thrown away. As this plant, in its wild state, is very commonly found growing on the tops of old walls, it may be considered as one of the most ornamental plants for placing in such a situation.

Ants. See *Insects*.

AOT

Ao'tus. From *a*, not, and *ous*, ear; the ear-like appendages to the calyx are wanting. Nat. Ord. *Leguminosæ*.

A somewhat extensive genus of small evergreen shrubs from New Holland. They are slender plants, with heath-like leaves, arranged in whorls around the stem. The flowers are pea-shaped, bright yellow, on short stalks. *A. gracillima*, a native of West Australia, is a favorite species for the green-house. It is a slender shrub, with copious yellow flowers, which are so thickly set on the stems as to hide the leaves from view. Botanists report several very beautiful species not yet in cultivation. Propagated by seeds or cuttings. Introduced in 1844.

Apetalous. Without petals.

Aphela'ndra. From *apheles*, simple, and *aner*, a male; the anthers being one-celled. Nat. Ord. *Acanthaceæ*.

A small genus of dwarf shrubs from tropical America, allied to the *Justicia*. *A. cristata* is a remarkably handsome hot-house plant, producing large spikes of orange-scarlet flowers. *A. aurantiaca* has no less handsome flowers of light orange color, and grows freely in the green-house. *A. Margaritæ* has bright orange or apricot-colored flowers, growing in short, terminal spikes. The leaves are barred with white on each side of the midrib; underneath they are of a clear, rose color; a very showy species, introduced from Central America in 1884. They are increased by cuttings.

Aphele'xis. From *apheles*, simple, and *exis*, habit. Nat. Ord. *Compositæ*.

Green-house evergreen shrubs, from the Cape of Good Hope, having much resemblance to that class of everlasting flowers known as *Helichrysum*. The genus is composed of five species, all of them having very small leaves, which are closely pressed to the stem like those of club-moss. The flowers are solitary, of a pink or yellow color, in small clusters of two or three. *A. humilis* and its varieties are most showy and valuable green-house plants. When in bloom they remain in perfection for six or seven weeks. Propagated by cuttings, or from seeds. Introduced in 1796.

Aphides. See *Insects*.

Aphylla'nthes. Its stems are like a rush, and bear on their summits a little tuft of flowers; hence the name, from *aphyllos*, leafless, and *anthos*, a flower. Nat. Ord. *Liliaceæ*.

A small genus of hardy, herbaceous, rush-like perennials, common in Southern Europe. The flower scape is very slender and grass-like and bears a cluster of small blue flowers, that are of but short duration. This plant is of considerable interest to the botanist, but not of the slightest use to the florist or gardener.

Aphy'llon. Naked Broom Rape. A genus of *Orobanchaceæ*, comprising two species, both natives of this country. They are characterized by their solitary bractless flowers, regularly five-cleft calyx, and almost regular corolla. The flowers are perfect, purplish, on long, naked scapes or peduncles. The plants are brownish or yellowish.

Aphy'llous. Destitute of leaves. It sometimes signifies their partial or imperfect production.

APO

Api'cra. A division of succulents allied to the Aloe, and comprising along with *Haworthia* a group of species of very different aspect from the great cylindrical or tubular-flowered Aloes more commonly associated with the name. The present are dwarf or stemless plants, with very crowded leaves and slender flower scapes, bearing erect greenish-white flowers.

Apiculate. Terminated in a little point.

A'pios. From *apion*, a pear, in reference to the form of the roots. Nat. Ord. *Leguminosæ*.

A. tuberosa, the only species, is found in the woods and hedges from Massachusetts to the Carolinas. It is an elegant climbing plant, allied to the *Wistaria*. It bears large clusters of brownish-purple, sweet-scented flowers in July. Readily propagated by division of tubers, which are edible. Commonly known as Ground-nut, and erroneously as Tuberous Wistaria.

A'pium. From *apon*, Celtic for water; in reference to the habitat of the genus. Nat. Ord. *Umbelliferæ*.

Though this genus contains but a few species, two of our best known vegetables belong to it, viz.: The "Celery," *A. graveolens*, and "Parsley," *A. petroselinum*, for culture of which, see under their respective names.

Aple'ctrum. Putty Root. Adam and Eve. From *a*, not, and *plektron*, a spur; the flower without spurs. Nat. Ord. *Orchidaceæ*.

A. hyemale, the only species, is a hardy bulbous Orchid. The flowers are produced in summer in a raceme a foot or more high, and are of a dingy color, more curious than beautiful. The plant is occasionally found in the Northern and Eastern States.

Aplopa'ppus. A synonym of *Haplopappus*, a genus of *Compositæ*, of but little interest.

Apocyna'ceæ. A large natural order of trees, shrubs and herbs, with simple, opposite, sometimes alternate or whorled leaves. Most of the species inhabit tropical countries; the northern forms are the *Vinca* or Periwinkle, *Nerium* or Oleander, and a few more. In general the species form a poisonous, acrid, milky secretion, which renders them dangerous; but others are mild enough in their action to be useful in medicine, and in a few cases the milk is bland enough to form a palatable beverage. Well-known genera belonging to this order are *Allamanda*, *Nerium*, *Tabernæmontana*, and *Vinca*. About 600 species are known, distributed through about 100 genera.

Apo'cynum. Indian Hemp. From *apo*, from, and *kyon*, a dog; poisonous to dogs. Nat. Ord. *Apocynaceæ*.

A genus of hardy herbaceous perennials, indigenous throughout the United States. *A. cannabinum* is commonly called Indian Hemp, from the fact of the Indians using the fibrous bark as a substitute for hemp in making their fishing-nets, mats, clothing, and various other articles for which the true Hemp is generally used. *A. androsæmifolium* is termed by English botanists the "Fly Trap of North America," and is cultivated as an object of curiosity. They do not class it as insectiverous further than that its flowers catch and kill the flies, but do not feed upon them. None of the species possesses sufficient beauty to warrant its introduction into the garden.

APO

Aponoge'ton. Water Hawthorn. The name is derived from the Celtic *apon*, water, and the Greek word *geiton*, near; the species growing in water. Nat. Ord. *Naiadaceæ*.

A genus of interesting aquatics, inhabiting the waters of the Cape of Good Hope, the East Indies and Australia. *A. distachyon* is a handsome aquatic plant, remarkable for its floating branched spikes of small fragrant white flowers. This species is a native of the Cape of Good Hope, but will flourish in a lake or stream if planted at a depth of about two feet of water. In appearance it resembles a Pondweed (*Potamogeton*), except that it is of a clear green color, without any tinge of brown. The leaves float on the surface of the water, are oblong, about 18 inches long when full grown, flat, and have three distinct veins running parallel with the main rib. A charming variety, with rose-tinted flowers, is also in cultivation, having been introduced in 1885.

Appendiculate. Having appendages.

Applanate. Flattened out.

Apple. *Pyrus Malus.* The history of the Apple shares obscurity with all the fruits, vegetables, and flowers that were in cultivation before any records were kept; consequently speculation must take the place of facts in connection with the early history of this valuable fruit. The general opinion is that the origin of the cultivated Apple is the wild Crab, which is found indigenous in nearly all parts of Europe, as well as in most parts of the United States.

The Apple can only be grown in small gardens as a dwarf, either kept in a bush form or trained as a pyramid or other shape. Two sorts of dwarfing stocks are used by nurserymen, the Doucin and the Paradise. Trees upon the Doucin will ultimately grow quite large; and as the Paradise is the only stock which makes really dwarf trees, the amateur who wishes to grow dwarf apple-trees should make sure that they are worked on Paradise stocks. Of course, trees of this kind are not advised as a source of profit; but there can scarcely be a handsomer object in the garden than a bush six feet high, and about the same through, loaded with enormous apples. The following sorts are recommended for garden culture. (For descriptions, see nursery catalogues.) Baldwin, Gravenstein, Rhode Island Greening, King of Tompkins County, Maiden's Blush, Esopus Spitzenberg, Early Harvest, Northern Spy, Porter, Fall Pippin, Stump, Hubbardston Nonsuch and Jonathan, etc.

Apple, Adam's. *Citrus Limetta.*
Alligator. *Anona palustris.*
Balsam. *Momordica Balsamina.*
Beef. *Sapota rugosa.*
Bitter. *Cucumis* (*Citrullus*) *Colocynthis.*
Cherry. *Pyrus baccata.*
Chinese. *Pyrus* (*Malus*) *Spectabilis.*
Dead Sea or of Sodom. The fruit of *Solanum Sodomeum*, also applied to the galls of *Quercus infectoria.*
Devil's. *Mandragora officinalis.*
Elephant's. *Feronia elephantum.*
Golden. *Ægle marmelos*, and *Spondias lutea.*
Kangaroo. *Solanum laciniatum.*
Love. *Lycopersicum esculentum*, or Tomato.
May. *Passiflora incarnata*, also *Podophyllum peltatum.*
Mamme. *Mammea Americana.*
Monkey. *Clusia flava.*

AQU

Apple. N. American Crab. *Pyrus Coronaria.*
Oak. A gall produced by insects on the leaves and twigs of the Oak.
Of Jerusalem. *Momordica Balsamina.*
Of Paradise. *Citrus medica.* A fruit used by the Jews at the feast of Tabernacles.
Of Scripture. Probably the Apricot, *Prunus Armeniaca*, or the Quince, *Cydonia vulgaris.*
Of the Earth. An old name for *Aristolochia rotunda* and *Cyclamen.*
Oregon Crab. *Pyrus rivularis.*
Paradise. *Pyrus malus præcox*, much used for grafting and budding superior sorts upon.
Rose. The various species of *Eugenia.*
Sugar. *Anona squamosa.*
Thorn. *Datura Stramonium.*
Wild Balsam. *Echinocystis lobata.*
Wild Star. *Chrysophyllum olivæforme.*

Apple-Berry. Australian. The genus *Billardiera*, which see.

Apple-Mint. *Mentha rotundifolia.*

Apple-Scented Geranium. *Pelargonium odoratum.*

Apple-Tree of **Australia.** *Eucalyptus Stuartiana.*

Apple-Tree of **New South Wales.** *Angophora subvelutina.*

Apple-Tree of **Victoria.** *Angophora lanceolata.*

Apple-Wood. *Feronia elephantum.*

Apricot. *Prunus Armeniaca.* The Apricot is a native of Central Asia, China, Japan, Armenia, and Arabia. In all these countries it is found in its native state, and is also extensively cultivated. The difference in the quality of this fruit in its wild and cultivated states is not so great as in most other fruits, nature having left less work for man to do in order to enjoy it in its highest condition. The fruit or pulp of the wild Apricot, however, does not compare with many of the cultivated varieties that have resulted from selections, yet it is a fair and wholesome fruit. The Apricot is extensively grown in China and Japan, and the natives employ it variously in the arts. The Persians also grow this fruit extensively; so highly do they esteem it that they call it the "Seed of the Sun." The Apricot was introduced into England in 1524 by Woolf, the gardener to Henry VIII. Parkinson (1629) mentions eight varieties. Since then many varieties have been added to the list which is by no means so extensive as that of other kinds of fruit. The ravages of the Curculio prevent the cultivation of this excellent fruit in some parts of this country; but for that pest it could be produced in the greatest abundance at a very low price.

Apterous. Without wings.

Aqua'tic Plants. The culture of Aquatic Plants is most interesting, and is yearly becoming better understood. Many of the more tender sorts can be protected during winter, and give quantities of flowers during the summer and autumn months (see *Nymphæa*). A number of species of the following genera are well worthy of attention. *Aponogeton, Butomus, Cyperus, Damasonium, Calla, Hottonia, Limnocharis, Menyanthes, Nelumbium, Nuphar, Nymphæa, Ouvirandra, Pistia, Pontederia, Polygonum, Sagittaria, Salvinia, Thalia, Trapa, Typha, Villarsia, Victoria*, etc.

Aqua'ticus. Living in water.

Aquatilis. Living under water.

ARACHIS HYPOGÆA (PEANUT).

APIOS TUBEROSA.

ARALIA SIEBOLDI.

ANTHOXANTHUM (SWEET VERNAL GRASS).

ANTIRRHINUM.

ARECA BAUERI.

AQUILEGIAS.

ARGEMONE.

ARMERIA MARITIMA.

ARUM ITALICUM.

ARISTOLOCHIA ELEGANS.

ARABIS ALPINA.

ARECA SAPIDA.

ARRHENATHERUM (TALL MEADOW OAT GRASS).

AQU

Aquifo'lia'ceæ. The common Holly Tree *Ilex Aquilfolium*, is the type of this small natural order of shrubs and trees. The species may be said to possess in general, emetic qualities, variously modified in various instances. Bird-lime is obtained from the bark of the common Holly, and the beautiful white wood is much esteemed by cabinet-makers for inlaying. A decoction of *Ilex vomitoria*, called Black Drink, was used by the Creek Indians at the opening of their Councils, and it acts as a mild emetic. But the most celebrated product of the order is Maté, or Paraguay Tea, the dried leaves of *Ilex Paraguariensis*, which see. There are about 150 species, and the following genera *Byronia*, *Ilex*, and *Nemopanthes*. The order is sometimes known as *Illicineæ*.

Aquila'ria. Eagle Wood. From *aquila*, an eagle; locally called Eagle-wood in Malacca, where it abounds. Nat. Ord. *Aquilariaceæ*.

A small genus of tropical evergreen shrubs and trees. *A. Agallocha*, a large tree inhabiting Silket, and provided with alternate lanceolate leaves, furnishes an odoriferous wood called Aloes-wood, or Eagle-wood. The wood contains an abundance of resin, and an essential oil, which is separated and highly esteemed as a perfume. The Orientals burn it in their temples for the sake of its slight fragrance, on which account it was used in the palace of Napoleon the First.

Aquile'gia. Columbine. From *aquila*, an eagle; alluding to the form of the petal. Nat. Ord. *Ranunculaceæ*.

Perennial herbaceous plants growing from one to three feet high, of which several species are very ornamental, especially, *A. vulgaris*, and its varieties. *A. Canadensis* is the wild Columbine of the United States. *A. chrysantha*, from the Rocky Mountains, has canary-colored flowers, contrasting finely with the blue *A. alpina* and *A. cærulea*. There are also many beautiful hybrids, as well as species in cultivation. They are of easy cultivation and are propagated by seeds, or by division of the root.

A'rabis. Rock Cress. From *Arabia*; probably in reference to the dry situations where many of the species grow. Nat. Ord. *Cruciferæ*.

An extensive genus of annual or perennial herbaceous plants, bearing white or, rarely, purple flowers. *A. alpina* has white flowers, which, in its native country, appear in March; and *A. albida* flowers the greater part of the year, commencing in mild winters in January, and producing its large tufts of white blossoms till October. Some of the species and varieties, such as *A. verna*, *A. alpina nana*, and *A. bellidifolia*, do not grow above three inches high, and are admirable plants for rock-work.

Ara'ceæ or **Aro'ideæ.** An extensive genus of herbaceous plants with numerous unisexual or hermaphrodite flowers, closely packed upon a spadix, shielded when young by the hooded leaf called a spathe, as is seen in the common Indian Turnip, *Arisæma triphyllum*. They are common in tropical countries, but rare in those with a cold or temperate climate. Most of them have tuberous rhizomes, but some acquire the stature of small trees, the most interesting of which is the Dumb Cane a species of *Dieffenbachia*, others as *Philodendron* and *Monstera* have scrambling stems

ARA

by which they attach themselves to the trunks of trees. The tuberous species all contain starch in such abundance that it may be separated in the form of arrow-root, and used as food, only however, after very careful washing to remove the acrid juices; and the Colocasias are grown as an article of food in hot countries as common field crops. Scarcely more than 200 species are known, *Caladium*, *Richardia*, *Arum*, *Amorphophallus*, etc., are examples of this order.

A'rachis. Peanut. From *a*, privative, and *rachis*, a branch; a branchless plant. Nat. Ord. *Leguminosæ*.

A. hypogæa (underground), the only species, is the *Peanut* of our shops. It is a native of the West Indies and Western Africa, but has become generally cultivated in all warm climates as an article of food, to be eaten like other nuts, or as food for swine. It is also largely cultivated in the East Indies and Cochin China for the oil obtained from the seeds, which is thin and of a straw color, resembling the finer kinds of olive oil. It is said to be of a superior quality, and for table use preferable to the best olive oil. It is free from stearine, and is used by watchmakers and others for delicate machinery. The plant is an annual, of a trailing habit, with yellow, pea-shaped flowers, produced from the axils of the leaves in bunches of five or seven, close to or even under the ground. They should be grown in a light, sandy soil, and the stems covered lightly with earth when in flower, as the seeds are only ripened under ground. The peanut is profitably grown in nearly all of the Southern States.

A'rachnis. Name from the Greek: a spider. Nat. Ord. *Orchidaceæ*.

A small genus of very curious and interesting epiphytal orchids from Java; deriving their name from their extraordinary resemblance to a spider. *A. moschifera*, the best known species, is a very peculiar plant, somewhat like a *Renanthera* in habit. The flowers are large, creamy white, or lemon-color, with purple spots; they are delicately scented with musk, and continue in perfection a long time.

Arachnoid. Resembling a cob-web in appearance.

Ara'lia. A name of unknown meaning. Nat. Ord. *Araliaceæ*.

This genus consists of trees, herbs and shrubs, mostly of an ornamental character, but of no value as flowering plants. The roots, of *A. nudicaulis*, one of our native species is largely sold for sarsaparilla. *A. racemosa*, is our beautiful *Spikenard*, much esteemed for its medicinal properties. *A. spinosa*, one of our native shrubs or low trees, is common in cultivation, and is known as the *Angelica Tree* and *Hercules Club*. *A. papyrifera*, which assumes a tree form, grows in great quantities in the deep, swampy forests of the island of Formosa. The stems of this species are filled with pith of a very fine texture, from which is manufactured the celebrated rice paper of the Chinese, which is chiefly used in making artificial flowers. *A. Sieboldi* (Syn. *Fatsia japonica*) has large leathery, deep green leaves and is much used in sub-tropical and window gardening; a very beautiful variegated variety of this species is in cultivation. The various species with much divided leaves in-

troduced from the South Sea Islands, such as *A. Veitchii*, *A. reticulata*, *A. gracillima*, etc., are extremely beautiful and admirably suited for the warm green-house and for table decoration.

Ara'lia'ceæ. These form a small natural order closely approaching Umbellifers, from which they in reality differ in little, except in their fruit. They are also more generally arborescent, many of them being trees or large shrubs, and very few herbs. Several are conspicuous for their broad, noble foliage. The species are found in the tropical and sub-tropical regions of the world, and in some of the coldest, as in Canada, the northwest coast of America, and Japan. *Aralia polaris* even occurs in Lord Auckland's Islands, in 50½° south latitude. *Hedera*, *Panax* and *Aralia*, are examples of this order.

Arauca'ria. From *araucanos*, its name among the people in whose country the *Araucaria imbricata* grows in Chili. Nat. Ord. *Coniferæ*.

The genus consists of lofty evergreen trees, none of which will bear the open air of the climate of the Northern States. The most beautiful of the species is *A. excelsa*, from Norfolk Island, where it is known as Norfolk Island Pine. It grows to the height of 200 feet. Its symmetrical growth and deep green, finely-cut foliage give it a fern-like appearance. All the species are fine ornaments for the lawn during summer, but require the protection of the green-house during winter. Propagation can be effected by cuttings, though a slow and uncertain process. They grow readily from seed.

Arauja, is given by Bentham and Hooker as the correct name of the genus *Physianthus*.

Arborescent. Having a tendency to become a tree.

Arboretum. A collection of hardy trees formed for pleasure or instruction, and which, when well managed, is a source of much interesting study. They afford shelter, improve the local climate, renovate bad soils, etc., and also by concealing or hiding disagreeable objects, heighten the effect of agreeable ones, create beauty, and add value. A properly arranged Arboretum should be constructed with a view to picturesque beauty and not systematically, as is usually the case in Botanic Gardens, although scientific purposes are best served by a systematic arrangement.

Arbor Vitæ. A common name for *Thuja*.

A'rbutus. Strawberry-tree. From *arboise*, a Celtic word for rough fruit. Nat. Ord. *Ericaceæ*.

A genus of evergreen shrubs or low growing trees, numbering about twenty species, natives of southern Europe, the Canary Islands, Chili, and in some parts of this country. *A. unedo* is called the strawberry-tree from its fruit resembling a strawberry at a distance. It is a small tree from ten to twenty feet high. Flowers numerous, white, appearing in September or October. Fruit scarlet, ripening the second year. This fine evergreen is common in southern Europe, and is also met about the lakes of Killarney, in Ireland. The fruit of this species, when eaten in quantites is said to be narcotic. A wine is made from it in Corsica, but it has the same property as the fruit. In Spain both a sugar and a spirit are

obtained from it. The bark and leaves of the same plant are used as astringents; in some parts of Greece they are employed in tanning leather. It is cultivated, where the climate will permit, as an ornamental shrub, and as it ripens its fruit the second year, it is particularly beautiful in October and November, being covered at the same time with blossoms and ripe fruit.

Archange'lica. From *arche*, chief, and *angelica*, from its supposed virtues. Nat. Ord. *Umbelliferæ*.

A genus of mostly useless biennial plants; a few of the species are natives of this country. *A. officinalis*, is the Angelica, formerly much used in domestic medicine.

Archego'nium. The female organ in ferns, etc. Analogous with the ovary in flowering plants.

Archill or **Orchill.** A coloring matter obtained from various species of Lichens, especially *Rocella tinctoria*.

A'rctium. A name that is now employed by some botanists for the genus *Lappa*, Burdock.

Arctosta'phylos. Bearberry. From *arktos*, a bear, and *staphyle*, a berry; the Greek of the popular name. Nat. Ord. *Ericaceæ*.

A small genus of fruit-bearing shrubs, common in our Northern and Eastern States. The whole plant of *A. Uva-ursi* is astringent, and has been used for tanning leather. The berries of the several species are a favorite food of game birds.

Arcto'tis. Derived from *arktos*, a bear, and *ous*, an ear; shaggy fruit. Nat. Ord. *Compositæ*.

This genus consists of annuals, biennials, and green-house perennials. The annuals should be started in the hot-bed early, as they require a long season to develop their showy flowers, which are sulphur and orange. They grow freely in ordinary soil, and keep in bloom until killed by frost. Introduced from the Cape of Good Hope in 1774.

Arcuate. Curved or bent like a bow; forming an arch.

Ardi'sia. From *ardis*, a spear head; in reference to the sharp-pointed divisions of the flower. Nat. Ord. *Myrsinaceæ*.

Handsome green-house plants from the East Indies, producing either red or white flowers. *A. crenulata* is admired alike for its white flowers and vermilion berries, being constantly covered with either one or the other, or both. Propagated by seeds in the green-house. Plants usually fruit when one year old, and are invaluable plants for winter decoration. There is also a pretty white-fruited variety.

Ardui'na. A genus of *Apocynaceæ*, consisting of shrubs with a milky juice. Natives of Asia, Africa and tropical Australia. *A. bispinosa* is a pretty, close-growing green-house shrub, with small, box-like leaves and white, sweet-scented flowers. *A. grandiflora* is a native of Natal, where the fruits are much valued, and known as the *Natal Plum*. They have an agreeable sub-acid flavor, and are used to make an excellent preserve.

Are'ca. Called *areec* in Malabar, when an old tree. Nat. Ord. *Palmaceæ*.

An extensive genus of lofty, magnificent Palms, natives of the East and West Indies and South America. The most prominent of the species is *A. oleracea*, the Cabbage Palm.

ARE

This is one of the most beautiful and stately of the Palm tribe, and is called in some of the tropical islands the *Royal Palmetto*. The stem of a full-sized tree at the base is seven feet in circumference, and it rises to the enormous height of one hundred and thirty feet. A noted traveler, in his description of this tree, says: "Near the base, the trunk is of a brown color, hard, woody, and jointed, with a pith inside like the elder. The upper part of the trunk, from whence the foliage springs, resembles a well-turned, finely-polished baluster, of a lively green color, gently swelling from its pedestal, and diminishing gradually to the top, where it expands into branches, waving like plumes of ostrich feathers. These are decorated with numerous leaflets, some of which are about three feet long, and an inch and a half broad, tapering into a sharp point. The leaflets gradually decrease in size as they approach the extremities of the branches. This lofty, regular group of foliage, impelled by the most gentle gale, and constantly waving in feathery elegance, is an object of beauty which cannot be imagined by an inhabitant of temperate climes, unused to the magnificent vegetation of a tropical sun. Within the leaves, which constitute the summit of the trunk, the portion called the cabbage lies concealed. This substance is white, about two feet long, of cylindrical form, and the thickness of a man's arm. It is composed of longitudinal flakes like ribbons, and so compact as to form a solid, crisp body. When eaten raw, it tastes somewhat like the almond, but more tender and delicious. When cut into slices and boiled, it is served up with meat as a vegetable. To obtain this great delicacy—growing on the very summit of such a stately trunk—the noble tree must be felled to the ground. In the place where the cabbage grew, a species of beetle generally deposits its eggs, from which, in due time, grubs are hatched, that have received the name of Palm-tree Worms. They are about the size of a man's thumb, very fat and esteemed a great luxury. They are fried with a little butter and salt, and their flavor partakes of all the spices of India." *A. catechu*, is a handsome tree cultivated in all the warmer parts of Asia for its fruits, known as *Areca* or *Betel* nuts. These nuts are cut into narrow pieces, which are rolled up with a little lime in the leaves of the Betel pepper. The pellet is then chewed, and is hot and acrid, but possesses aromatic and astringent properties, and is considered beneficial rather than otherwise. The natives are so addicted to the practice that they would rather go without food than their favorite Areca nuts.

Arena'ria. Sandwort. From *arena*, sand; in reference to the sandy soil in which the plants grow. Nat. Ord. *Caryophyllaceæ*.

A large genus of diminutive weeds, usually found growing on sandy soils.

Are'nga. Name not explained. Nat. Ord. *Palmaceæ*.

A. saccharifera, is a very useful and interesting Palm, a native of the Asiatic islands. In its native country the fibres attached to the petioles are twisted into ropes, the medulla of the trunk is used as sago, and the saccharine juice forms excellent sugar. It is said that this species alone will supply all the

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actual needs of the native: food, clothing, and a simple hut made from the leaves, are all supplied from this species, and are all that a native's necessities require. Known also as *Saguerus saccharifer*.

Areolate. Divided off into distinct spaces, usually more or less angular. The skin of a plant is areolate.

Arethu'sa. A classical name, after one of Diana's nymphs. Nat. Ord. *Orchidaceæ*.

A. bulbosa is a beautiful species found growing in damp places and bogs, Virginia to Maine, and northward. The flowers are a bright rose-purple, from one to two inches long. One of the prettiest of our native Orchids.

Arga'nia. From *argam*, its aboriginal name. Nat. Ord. *Sapotaceæ*.

A. Sideroxylon, the Argal tree; or Iron Wood, is a remarkable evergreen tree, a native of Morocco. It has a spiny trunk of considerable size, but of low stature. It gives off branches at a few feet from the ground, which incline downwards until they rest upon the earth; at length, at a considerable distance from the trunk, they ascend, and again reach out to a long distance. A tree mentioned in the *Journal of Botany*, measured sixteen feet only in height, while its circumference was 220 feet. The wood is very hard, and so heavy as to sink in water.

Argemo'ne. Prickly Poppy. From *argema*, a cataract of the eye; in reference to its medicinal qualities. Nat. Ord. *Papaveraceæ*.

Highly ornamental hardy annuals and perennials from Mexico, with large flowers like those of the Poppy, and of the easiest culture. The plants, spreading widely, require a good deal of room to look handsome. The seed of *A. Mexicana* is the *Fico del Inferno* (Infernal Fig) of the Spaniards; a purgative and powerful narcotic, especially if smoked with tobacco.

Argenteus. Silvery, a pale color resembling silver.

Argyre'ia. Named in reference to the white, silvery texture of the leaves, from *argyreios*, silvery. Nat. Ord. *Convolvulaceæ*.

A fine genus of strong-growing climbers from the East Indies. They are only adapted for the green-house, and require a long time, with liberal pot room, to bring them into flower. *A. cuneata* is a dwarf-growing, free-flowering species, colors white and purple, resembling the *Ipomœa*. Propagated by cuttings. Introduced in 1822.

Aril, Arillus. A fleshy growth which rises up from the placenta and encompasses the seed, like the Mace surrounding the Nutmeg, and the red sac the *Euonymus*.

Arisæ'ma. Indian Turnip. Dragon Arum. From *aron*, Arum, and *sana*, a standard; in reference to the close affinity to Arum. Nat. Ord. *Aroideæ*.

A genus of hardy tuberous-rooted perennials. Two of the species, *A. triphyllum*, the Indian Turnip, and *A. Dracontium*, the Green Dragon or Dragon Root, are common in moist woods and along streams in most parts of the United States. They bear cultivation well, and make beautiful plants for a shady border. The flowers are popularly known as Jack-in-the-Pulpit. These are succeeded by a cluster of scarlet berries, that make a showy appear-

ance until winter. The biting, acrid properties of this genus are such that the smallest portion chewed, either of leaves or root, produces a feeling as if the tongue were pierced with needles.

Aristate. Having a beard or awn, as the glumes of barley.

Ari'stea. From *arista*, a point or beard; in reference to the rigid points of the leaves. Nat. Ord. *Iridaceæ*.

A genus of tender herbaceous perennials from the Cape of Good Hope, embracing about fifteen species. They vary in height from three inches to three feet and produce their interesting blue flowers all summer. Easily propagated by division or seeds.

Aristi'da. From *arista*, a beard or awn. Nat. Ord. *Graminaceæ*.

A genus of harsh perennial grasses, common on dry, barren soils throughout the United States. *A. dichotoma* is commonly known as Poverty Grass, as it is a sure indication of poor and barren soil. *A. stricta* is the Southern Wiregrass.

Ari'stolo'chia. Birthwort. From *aristos*, best, and *locheia*, parturition, its supposed medicinal character. Nat. Ord. *Aristolochiaceæ*.

A genus of climbing plants natives principally of South America, a few species being found in North America, Europe and India. Most of them extend their branches a long distance, though some are to be found that are neat and compact in their growth. The flowers of all are extremely curious, generally of some lurid color, and bearing a resemblance to the expanded mouth of a horn. The larger ones have, not inaptly, been compared to the ear of an elephant, while others are distinguished by a long, pendant pouch. The tender species require either the hot-house or green-house, and a few are sufficiently robust to bear exposure to our winters. They grow freely in rich loam and leaf mould. *A. sipho* (Dutchman's Pipe) is a native of the Southern States, and one of the best climbers for covering walls or trellises; under favorable circumstances it will grow twenty feet in a season. The foliage is large, of a deep, rich green; it is propagated by seed, layers, or cuttings, and is perfectly hardy. *A. serpentaria*, the Virginian Snake Root, is well known for its aromatic-stimulant root, and is used in medicine.

Ari'stolochia'ceæ. In the tropical parts of both hemispheres, and occasionally beyond those limits, occurs a race of plants with singularly inflated, irregular flowers, consisting of a calyx only, of a dull, dingy color, varying from yellow to shades of chocolate, purple, or brown, and often emitting an offensive odor. A hot summer appears to be one condition of their existence, with a few exceptions, the most striking of which are the *Asarums*, little stemless plants, natives of Europe and North America.

Aristote'lia. A genus of evergreen shrubs of the Nat. Ord. *Tiliaceæ*.

A. Macqui is esteemed for its handsome foliage. The berries are purple, becoming black with age and are edible. The wood is used in Chili for making musical instruments, its tough bark forming the strings. The variegated form is a very ornamental plant.

Arme'niaca. The **Apricot.** *Prunus Armeniaca*.

Arme'ria. Thrift. The Latin name for the Sweet William. Nat. Ord. *Plumbaginaceæ*.

A genus of highly ornamental, hardy herbaceous plants, of dwarf habit, with flowers of various shades between pink and purple, produced on the majority of the species in great profusion. The common Thrift, *A. vulgaris*, is a well-known substitute for Box as an edging to flower borders. They grow with freedom in almost any soil, and without regard to situation, except that the drip of trees is injurious to most of them. Propagated by division. Exceedingly common on the rocky sea coasts of Britain. Several pretty varieties have been introduced into cultivation, especially a garden variety called *Crimson Gem*, with large heads of bright crimson-pink flowers, and tufted habit.

Arne'bia. Handsome, hardy herbaceous perennials of the Nat. Ord. *Boraginaceæ;* allied to *Lithospermum*.

A. echioides is one of the showiest hardy plants for the herbaceous border or rock-garden. Flowers bright primrose yellow, with a purplish spot, borne in large terminal spikes.

A'rnica. From *arnakis*, a lamb's skin; in reference to the texture of the leaves. Nat. Ord. *Compositæ*.

A small genus of hardy, dwarf herbaceous plants. Some of the species are common in this country, though not of special interest. *A. montana* is a native of the mountainous districts of Northern and Middle Europe. The tincture of Arnica is prepared from this species; was first introduced by the homœopathists, and soon after came into general use, and is considered invaluable for wounds or bruises.

Arno'tto, or **Ana'tto.** See *Bixa Orellana*.

Aromatic Wintergreen. See *Gaultheria*.

Aroni'cum. From *arnikis*, a lamb's skin; in reference to the softness of the flower-heads. Nat. Ord. *Compositæ*.

A small genus of pretty herbaceous perennials, inhabiting Central Europe and Asia. They have flower stalks varying from three inches to two feet high, with terminal heads of bright, yellow flowers. *A. Clusii*, a pretty little Alpine species growing from three to five inches high, is well adapted for a border plant or for rock-work. They are increased by division, or from seed. Syn. *Doronicum Clusii*., From *arpe*, a scimitar, and *phyllon*, a leaf; the leaf is sword-shaped.

Arpophy'llum. Nat. Ord. *Orchidaceæ*.

A small genus of handsome Orchids from Mexico and New Grenada. They are of graceful habit, easy of culture, and the flowers last long in perfection. They are increased by division, and should be grown rapidly to produce large bulbs, as small ones do not flower.

Arrhena'therum. Oat-grass. From *arrhen*, a male, and *anther*, a point; on account of awns on the male spikes. Nat. Ord. *Graminaceæ*.

A small genus of strong growing grasses, occasionally cultivated in this country as a pasture grass and for hay; it is not supposed to be very rich in nutritive matter, but is considered valuable in mixture with other grasses for moist meadows, as it produces a

plentiful supply of early foliage, which is eaten with avidity by cattle. It is a troublesome grass with other crops.

Arrow Cane. *Gynerium saggitatum.*

Arrow Grass. *Triglochin palustre.*

Arrow-head. Chinese. *Sagittaria Chinensis.*
Common. *Sagittaria sagittæfolia.*

Arrow Poison. Gaboon or Trop. Africa. *Strophanthus hispidus.*
Guiana, Curari or Curali. *Strychnos toxifera.*
Javanese. *Strychnos Tiente.*
Malay. *Antiaris toxicaria.*

Arrow-root. A pure kind of starch employed for dietary and other purposes, obtained from various sources, the principal of which are the following:
American. *Zea mays.*
Bermuda. *Maranta arundinacea.*
Brazilian or Tapioca. *Manihot utilissima*
Chinese. *Nelumbium speciosum.*
E. Indian. *Curcuma angustifolia*, and other species.
English. *Solanum tuberosum.*
Mexican. *Dion edule.*
Portland. *Arum maculatum.*

Arrow-wood. American. *Viburnum dentatum.*
Californian. *Viburnum ellipticum.*
British Columbian. *Spiræa Douglassi, S. opulifolia.*

Artane'ma. An interesting genus of plants belonging to the Nat. Ord. *Scrophulariaceæ.*

A. fimbriatum (closely allied to Torenia) is a handsome evergreen shrub with large funnel-shaped, fringed, blue flowers, blooming from June to November. It was introduced from Moreton Bay, New Holland, in 1830, and is readily increased by cuttings or seeds.

Art'anthe. Derivation of name not given. Nat. Ord. *Piperaceæ.*

A small genus belonging to the Pepper family. They are woody plants, with jointed stems, rough leaves, and spikes of flowers opposite the leaves. *A. elongata* furnishes one of the articles known by the Peruvians as Matico, and which is used by them for the same purpose as Cubebs, the produce of a nearly-allied plant; but its chief value is the power it has of staunching blood. The under-surface of the leaf is rough, traversed by a network of projecting veins, and covered with hairs; hence its effect in stopping hemorrhage is probably mechanical, like that of lint, cobweb, and other commonly used appliances. The species are not esteemed valuable as flowering plants. Placed by some authors under Piper.

Artemi'sia. Wormwood. From *Artemis*, one of the names of Diana. Nat. Ord. *Compositæ.*

Shrubby or herbaceous plants with their leaves usually much divided and frequently of a grey color. The genus is widely distributed over the temperate regions of the globe and most of them are remarkable for their strong odor and bitter taste. In certain parts of the West, as Utah, Texas, New Mexico, etc., there are large tracts almost entirely destitute of other vegetation than that afforded by various kinds of *Artemisia* which cover vast plains, and give them an universal greyish green hue. They are unfortunately of no value for forage.

This genus contains amongst others the well known Southern wood or Old Man, *A. Abrotanum*, the finely divided leaves of which have a fragrant aromatic odor. *A. Absinthium*, the common Wormwood, possesses aromatic, bitter, and tonic properties and was formerly much used as a vermifuge; it is also in connection with several species growing in Switzerland and used in the manufacture of the bitter aromatic tonic "Extrait d' Absinthe." The Tarragon, *A. Dracunculus*, differs from the majority of its fellows, in that its leaves are undivided, they are narrow, of a bright green color and possess a peculiar aromatic flavor much valued in Salads, etc. Native of Siberia. The Chinese Chrysanthemums are frequently miscalled Artemisias.

Arthropo'dium. From *arthron*, a joint, and *pous*, a foot; the foot-stalks of the flowers being jointed. A genus of Australian and New Zealand *Liliaceæ* allied to *Anthericum*, with grass-like leaves, and purplish or white flowers in loose racemes.

Arthroste'mma. From *arthron*, a joint, and *stemon*, a stamen, in reference to the stamens being jointed. Stove or green-house, evergreen shrubs, from Central America, belonging to the Nat. Ord. *Melastomaceæ.*

Some of the species are very handsome, with rose or lilac flowers, resembling the Rhexias. Propagated by cuttings.

A'rtichoke. The *Cynara scolymus*, the Globe Artichoke of gardens, is a hardy perennial, growing from three to four feet in height, with numerous branches. The leaves measure from three to four feet in length, pinnatifid, or cut in deep, horizontal, convex segments, which are covered with an ash-colored down, the whole plant resembling a large Thistle. The portion eaten is the under side of the head, before the flower opens. The whole head is removed and boiled, the leaves laid aside, and the bottom eaten, dipped in butter, with a little pepper and salt. The Artichoke is a supposed native of the south of Europe. The first account of its cultivation was in Italy, in 1473, and from that period, when it was said to be very scarce, it has steadily grown in favor, and its cultivation extended. The artichoke thrives best in a light, very rich, moist soil. One containing a large proportion of saline properties suits it best. Propagated by seeds or by suckers from established plants. The *Jerusalem Artichoke* is in no sense a true Artichoke, but the tuberous root of a species of Sunflower, *Helianthus tuberosus*, a native of the north-western States, the north-western British Possessions and Canada. Its nativity has generally been credited to Brazil, without any good authority; on the contrary, there is abundant proof that it abounds in a wild state in the localities above-named. Its cultivation is now strongly recommended on dry soils, liable to excessive droughts. It is said that 1,500 bushels per acre can be produced, upon which swine will thrive finely, the tubers furnishing sufficient water to allay thirst. They also furnish excellent food for sheep. Some agriculturists claim that the tops, cut and properly cured, form an excellent hay, with a yield of five or six tons to the acre.

Articulated. Jointed, having joints.

ART

Artillery Plant. See *Pilea serpillifolia* and *P. herniariæfolia.*

Artocarpa'ceæ. A group of apetalous trees, not unlike the Plane-trees of Europe; but for the most part inhabiting the tropics. They abound in a milky juice, and have, for the most part, their female flowers collected into fleshy masses or heads. Moreover, they have great sheathing, convolute stipules, like those of a Fig-tree. This natural order presents strange anomalies: the invaluable Bread-fruit tree of the tropics, the useful Cow-tree of Caraccas, and the virulent poison of the Upas-tree of Java, side by side. The more important genera are *Artocarpus* and *Antiaris.*

Artoca'rpus. Bread Fruit. From *artos*, bread, and *carpos*, fruit; the fruit baked resembles bread. Nat. Ord. *Artocarpaceæ.*

A. incisa, the Bread-fruit, originally found in the southeastern parts of Asia and the islands of the Pacific, though now introduced into the West Indies and South America, is one of the most interesting as well as singular productions of the vegetable kingdom. The Bread-fruit is a beautiful as well as a useful tree. The trunk rises to the height of about forty feet, and, in a full-grown tree, is from twelve to fifteen inches in diameter; the branches come out in a horizontal manner, the lower ones about ten feet from the ground, and they become shorter and shorter until they reach the top, giving the tree an appearance of perfect symmetry. The leaves are of a lively green, divided into seven or nine lobes, from eighteen inches to two feet long. The fruit is about nine inches long, heart-shaped, of a greenish color, and marked with hexagonal warts in clusters. The pulp is white, partly farinaceous and partly fibrous; but when quite ripe it becomes yellow and juicy. The Bread-fruit furnishes the chief sustenance of the inhabitants of the Society and South Sea Islands, and is used to a considerable extent in the West Indies. It is usually cut into pieces, and roasted or baked in ovens on the ground heated by hot stones.

Arum. From *aron;* supposed to be an ancient Egyptian word. Nat. Ord. *Aroideæ.*

There are several interesting species contained in this genus which may be accounted pretty additions to the collections of the hot-house and green-house, though the flowers possess a disagreeable odor. In contrast with the other species is *A. Palestinum*, that has flowers of deep crimson, with a delicious fragrance not unlike the Violet. In shape it resembles the Calla Lily, *Richardia Æthiopica;* in fact, when it was introduced, in 1876, into the United States, it was under the name of "Crimson Calla." Numerous offsets are annually produced, by which the species are extended. *A. Sanctum*, the Black Calla, a late introduction (1887) from the Holy Land, is described as "producing large, sweet-scented flowers, rising above the leaves on a slender but vigorous stalk, of a brown-red color at the lower part and green at the upper end. The spathe is from fourteen to eighteen inches long and four inches wide, of a brilliant dark purple color and green underneath. The spadix is about ten inches long, velvet-like, and quite black. The whole plant is most stately and elegant in appearance." *A. Dracunculus*, the Dragon Arum, deserves a place

ASA

in the flower garden for its large, very remarkable flowers. This species requires the same treatment as the Gladiolus. The roots of all this natural order, when green, contain a milky fluid, which is exceedingly acrid, exciting a painful sensation of burning heat in the tongue and mouth. When cut in slices and applied to the skin, it will very quickly produce a blister. This same active principle is not confined to the roots of the various genera and species, but is found in the leaves as well. A piece of the Calla leaf, not larger than a pin's head, if taken into the mouth, will produce violent and painful burnings. Some of the species yield an excellent quality of Arrow-root.

Arum Lily. *Richardia Æthiopica.*
Spotted Leaved. *Richardia maculata.*
Yellow. *Richardia hastata.*

Arundina'ria. An alteration of the word *Arundo*, to which this genus may be compared in reference to its large size. Nat. Ord. *Graminaceæ.*

A genus of grasses of a shrubby or arborescent nature, with strong-jointed stems, resembling those of the Bamboo cane. They are mostly from the warmer parts of the globe, and in some instances attain a great size. *A. falcata* is one of the hardiest kinds, and is very ornamental in the sub-tropical garden. This species will endure the winter without protection, from Washington, southward. *A. Schomburgkii*, a native of Guiana, is an important species. The canes grow sixteen feet high, with a diameter at the base of from twelve to eighteen inches. It is this plant that chiefly furnishes the native Indians with the tubes from which they blow their poisonous arrows, which act with such fatal effect on their victims. *A. gigantea* and *A. tecta*, two species found in the Southern and Western States, from Florida to Indiana, form canes from ten to twenty feet high and are now much used by florists for plant stakes, the toughest and best of which come from Indiana.

Aru'ndo. Reed. A word of doubtful derivation, perhaps from the Latin word *arundo*, a reed. Nat. Ord. *Graminaceæ.*

A. Donax is a splendid Bamboo-looking reed, rather tender in severe winters, but which, if the season be favorable, will grow, in rich soil kept moist, to the height of ten or twelve feet in one year, producing a fine oriental appearance when standing singly on a lawn or near water. This variety is a native of Southern Europe, introduced in 1648, and for many years has been an inmate of our flower gardens. *A. Donax variegata*, a variety with leaves beautifully striped in different colors, similar to those of the common Ribbon-grass of our gardens, is one of the most beautiful plants for the sub-tropical garden. It requires, however, the protection of the green-house during winter in our Northern States. It is propagated by division of the roots, and will succeed in ordinary garden soil.

Asafœ'tida plant. *Narthex asafœtida.*

Asafœ'tida plant, Persian. *Ferula Persica.*

Asaraba'cca. A common name for *Asarum Europæum.*

A'sarum. Wild Ginger. From *a*, private, and *saron*, feminine; the application of the term unexplained. Nat. Ord. *Aristolochiaceæ.*

ASC

A genus of rather curious hardy herbaceous perennials, common in most parts of the United States, usually in rich, moist woods. They are highly esteemed for their medicinal properties. *A. Canadense* is the Canada Snake-root or Wild Ginger. It is recognized by its single pair of broad, kidney-shaped leaves, and a single large, brownish-purple flower on a short peduncle, sometimes nearly buried. The roots are pungent and aromatic.

Ascending. Directed upwards; as the stem, which is the ascending axis.

Ascle'piada'ceæ. The very large natural order which bears this name is known by its pollen being collected in the form of waxy masses or bags, derived from the separable inner lining of the anther cells, and by the fruit consisting most commonly of a pair of divaricating inflated seed-pods. Fully 1,000 species are known, for the most part inhabiting the tropics of the Old and New Worlds. They vary extremely in appearance, many being leafless succulents, like *Stapelia;* others (and they are more numerous) consisting of twiners like *Hoya;* while another portion consists of upright herbaceous plants, such as *Asclepias* and *Vincetoxicum;* a few are tropical trees. As a general rule the species are poisonous; an acrid milk which pervades all their parts being eminently emetic and purgative. The genera *Stapelia, Hoya, Asclepias, Vincetoxicum, Ceropegia* and *Periploca,* are good examples of the order.

Ascle'pias. Milkweed. The Greek name of the *Æsculapius* of the Latins. Nat. Ord. *Asclepiadaceæ.*

An extensive genus of tall-growing plants, mostly of a hardy herbaceous character, remarkable for their curious flowers and the silky substance which fills the seed-pod. The most ornamental native species is *A. tuberosa,* which has fine orange-colored flowers but is somewhat difficult to cultivate. *A. Mexicana,* white, and *A. Curassavica,* orange-scarlet, both tender species, are excellent plants for the mixed border in summer; the former is especially valuable for cut flowers. They are all easily raised from seeds.

A'scyrum. From *a,* without, and *skyros,* hard; that is to say, a plant that is soft to the touch. Nat. Ord. *Hypericaceæ.*

A genus of elegant little herbs and sub-shrubs numbering five species, all of them American with a distribution from the Northern States to New Grenada. *A. Crux Andreæ,* is called St. Andrew's Cross from the circumference of the four pale yellow petals approaching each other in pairs, they appear like a cross with equal arms. Collectively they are called St. John's-worts.

Ash. American Black or Water. *Fraxinus sambucifolia.*
Black Mountain. *Eucalyptus Leucoxylon.*
Blue. *Fraxinus quadrangulata.*
Cape. *Ekebergia Capensis.*
Carolina Water. *Fraxinus platycarpa.*
Chinese. *Fraxinus Chinensis.*
Common. *Fraxinus excelsior.*
Flowering. *Fraxinus Ornus.*
Gray. *Fraxinus Americana var. cinerea.*
Ground. *Ægopodium podograria,* and *Angelica sylvestris.*
Hoop. *Celtis crassifolia.*

ASP

Ash. Jerusalem. *Isatis tinctoria,* or *Reseda luteola.*
Manna. *Fraxinus Ornus var. rotundifolia.*
Mountain or Wild. English. *Pyrus aucuparia.*
Mountain. N. American. *Pyrus Americana.*
Northern Prickly. *Xanthoxylum Americanum.*
Oregon. *Fraxinus Oregana.*
Poison. *Rhus Venenata.*
Prickly. *Xanthoxylum fraxineum.*
Red American. *Fraxinus pubescens.*
Southern Prickly. *Xanthoxylum Carolinianum.*
Wafer. *Ptelea trifoliata.*
Water. *Fraxinus sambucifolia.*
White. *Fraxinus Americana var. alba.*

Ash-keys, or **Ash Candles.** The fruit of *Fraxinus excelsior.*

Ash-leaved Maple. *Acer Negundo.*

Asiatic Poison Bulb. *Crinum Asiaticum.*

Asi'mina. Papaw. Named from *Asiminier* of the French colonists. Nat. Ord. *Anonaceæ.*

A. triloba, the only species, is a low-growing tree or shrub, common in the Western and Southern States, where it is popularly known as Papaw. The fruit is from three to four inches long, yellowish, and when fully ripe is by many highly esteemed.

Aspa'ragus. From *a,* intensive, and *sparasso,* to tear; in reference to the strong prickles of some species. Nat. Ord. *Liliaceæ.*

Of this extensive genus of hardy herbaceous and green-house plants, the common garden Asparagus, *A. officinalis,* is the best known species. There are, however, several green-house climbing species, natives of Southern Africa, that have of late years been cultivated for decorative purposes, and well deserve a place in every collection, however small. Of these *A. tenuissimus* is the most largely cultivated as it is easily increased by cuttings, and its foliage is remarkable for its extreme slenderness, and delicate appearance. *A. plumosus,* and its variety *A. p. nanus,* are most elegant plants, with smooth stems, and gracefully arching, fine filmy foliage, rivalling the delicate beauty of the finest Maiden-hair Ferns, while their cut sprays have the advantage of much greater persistency than any fern, retaining their freshness in water from three to four weeks. They also form excellent plants for the green-house, when trained in pots, and are invaluable for cutting. They are unfortunately slow of propagation being increased only by seeds, or by division. They were introduced to cultivation in 1876.

The Garden Asparagus, *A. officinalis,* is a native of Great Britain, Russia, and Poland. In many other parts of Europe it is found growing wild, but is probably an escape in many localities, and is perfectly naturalized, as it is sparingly on our own coasts. The Asparagus is one of the oldest as well as one of the most delicious of our garden vegetables. It was cultivated in the time of Cato the Elder, 200 years B. C.; and Pliny mentions a sort that grew in his time near Ravenna, of which three heads would weigh a pound. From these accounts it would appear that there is nothing new under the sun in the line of Asparagus. Many of our best gardeners contend that adaptation of soil, together with thorough cultivation, alone explains the difference in this vegetable, as offered in our markets, but we feel satisfied that there are

varieties in Asparagus, as well as in other vegetables, and such selections as Conover's Colossal, and the Palmetto, are undoubted improvements on the original sort. Its value and importance as a Vegetable can hardly be over-estimated, it is extensively grown and when properly managed produces a lucrative crop.

The preparation of the Asparagus bed should be made with more care than for most vegetables, from the fact that it is a permanent crop, which ought to yield as well at the end of twenty-five as of five years, if the soil has been well prepared. The Asparagus bed, to start with, should be on ground thoroughly drained, either naturally or artificially, and if choice can be had, on a rather light, sandy loam. This should be trenched and mixed with sufficient manure to form a coating at least six inches thick over the bed. This manure should be worked into the soil by trenching to the depth of two feet, as the roots of the plant will reach quite that depth in a few years. In setting, the crowns of the plants should be placed at least three inches below the surface. Asparagus may be planted either in the spring or the fall. If in the spring, it should be done as early as the ground is dry enough to work; and if in the fall, just as soon as the plants can be had, which is usually in the early part of October. We prefer fall planting on light, well-drained soils, for the reason that, if it is done then, young roots are formed which are ready to grow on the approach of spring; but if the planting is done in March, April, or May, this formation of new roots has to take place then, and causes a corresponding delay in growth. Plants are sold by market gardeners and seedsmen; and as it will save a year or two to purchase them, it is not worth while to raise them from seed in a private garden.

The edible portion is the undeveloped stems, which, if cut away as soon as they appear, are followed by others, which start from the crown of the plant. The cutting, if continued too long, would finally exhaust the root; hence it is customary to stop cutting as soon as early peas become plenty, and allow the remaining shoots to grow during the rest of the season, and thus accumulate sufficient strength in the plant to allow it to produce another crop of shoots the next season.

The surface of the Asparagus bed should have a top dressing of three or four inches of rough stable manure every fall (November), which should be lightly forked into the bed in the spring. The variety mostly grown is the Colossal, although the new French variety, known as the Palmetto, is likely to supersede it, its merit being that the shoots grow more uniformly large than the Colossal.

In some localities Asparagus is attacked by an insect called the Asparagus Beetle. The best method of getting rid of this pest, that we have found, is to coop up a hen, and let the chickens eat the insects and their eggs.

Asparagus can also be forced to advantage if brought into market before March. By that time Florida begins to supply our markets in quantity, and the price depreciates. Strong, healthy young plants, three to four years old, are best suited for this purpose, and should be sown yearly and grown on in succession, on the surface plan; that is, not planted deep in the ground as for permanent beds. The general management for forcing is similar to that required for Rhubarb. See article on "Forcing Vegetables."

Aspa'ragus, Bath or Prussian, consists of the spikes when about eight inches long, of *Ornithogalum Pyrenaicum* which grows abundantly enough in hedges and pastures in that locality (Bath, England), to be worth gathering for sale.

Aspa'ragus of the Cossacks. *Typha latifolia.*

Aspa'sia. From *aspazomai*, I embrace; the column embraced by the labellum. Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids from Central and South America. One of the more important species, *A. epidendroides*, has yellow and brown sepals, the petals light purple, the lip white, with purple in the centre. The species should be grown in baskets, or on blocks of wood or cork, with plenty of moss. They do not require a high temperature, but need plenty of air. Increased by division. Introduced in 1833.

A'spen. See *Populus tremula.*

A'spera. Rough, with hairs or points.

Aspe'rula. The diminutive of *asper*, rough; in reference to the rough leaves. Nat. Ord. *Rubiaceæ.*

Pretty, dwarf, hardy plants, chiefly natives of the European Continent, well adapted for shaded situations among trees. *A. odorata*, the common Woodruff, is esteemed for its delightful scent. This pretty little plant, when wilted, has the odor of new-mown hay, and when kept among clothes, it not only imparts an agreeable perfume to them, but preserves them from insects.

Asphalt. Artificial Asphalt is used very generally for foot-paths in gardens, etc. One of the best methods is the following: Lime rubbish, two parts; coal ashes, one part, (both must be very dry and sifted very fine); mix them and leave a hole in the middle of the heap, wherein pour boiling hot coal-tar; mix well together. When as stiff as mortar, lay it down three inches thick, on a dry and previously well-leveled surface, sprinkle with dry sifted sand and roll thoroughly with a heavy roller. Only just enough tar to last about ten minutes must be taken from the furnace at one time, as, if it be not boiling, the walks will become soft under the action of very hot sun. This may be repeated every three years. It is imperative that the surface, lime, coal ashes, and sand, be perfectly dry, and that the days selected for the operation be very fine, the hotter the better.

Aspho'delus. Asphodel. From *a*, privative, and *sphallo*, to supplant; the stately flowers not easily surpassed. Nat. Ord. *Liliaceæ.*

Showy plants suitable for the open border, with white or yellow flowers. They may be grown in any soil, and are readily increased by separation of the roots. Most varieties are from the south of Europe, have long been in cultivation in our gardens, and are perfectly hardy.

Aspi'dieæ. A section of polypodineous Ferns, in which the sori are punctiform or dot-like, and covered either by reniform or peltate indusia.

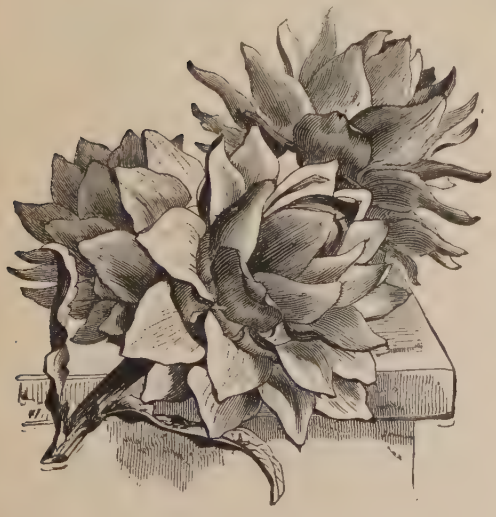
ASTILBE AUREA RETICULATA.

ARUM DRACUNCULUS.

AUBRETIA.

ARTICHOKE (JERUSALEM).

ARUM SANCTUM (BLACK CALLA).



ARTICHOKE (GLOBE).

ASTILBE JAPONICA.

ASTER (SCARLET TRIUMPH).

AZALEA.

ASTER (CROWN).

ASPARAGUS TENUISSIMUS.

ASTER (MINIATURE BOUQUET).

AVENA FLAVESCENS (YELLOW OAT GRASS.)

ASP

Aspidi'stra. From *aspidiseon*, a little round shield; the form of the flower. Nat. Ord. *Liliaceæ.*

A small genus found in China and Japan, remarkable for producing their flowers under the surface of the earth. They are useful house plants, and are propagated by suckers. The foliage of *A. elatior variegata* (green with broad stripes of white) contrasts finely with ornamental-foliaged plants. For the production of well-marked plants, the pots in which they are grown should be small, and the soil liberally mixed with sand. Introduced in 1835.

Aspi'dium. Shield Fern, Wood Fern. From *aspidion*, a little buckler; the shape of the indusium. Nat. Ord. *Polypodiaceæ.*

An extensive genus of hardy and greenhouse Ferns. Many of the species are common in moist, shady places throughout the United States. The green-house varieties are mostly from the West Indies. All the species are of easy culture. Many of them are deservedly popular in the fern-house or shady border.

Asple'nieæ. A section of polypodineous Ferns, in which the simple linear or oblong sori are parallel with the veins, and oblique to the midrib, produced on one side of the veins, and covered by indusia of the same form.

Asple'nium. Spleenwort. From *a*, privative, and *splen*, spleen; referring to its supposed medicinal properties. Nat. Ord. *Polypodiaceæ.*

This genus, as established by Linnæus, was a very extensive one, and the species exceedingly varied. So much confusion existed in regard to it, that modern botanists have divided and sub-divided it; yet it contains a large number of hardy and tropical species, many of which are exceedingly beautiful and interesting, and are commonly found in our green-houses. Some of the species have the very singular property of bearing little buds on their surface, from which young plants are formed. It is not an uncommon thing to see fifteen or twenty of these young plants, all perfectly developed, from one to two inches high, on a single frond. They are popularly known as bulb-bearing Ferns. Several of the species are indigenous throughout the United States, and there is scarcely a country in which some of the species may not be found.

Aste'lma. Strawberry Everlasting. From *a*, not, and *stelma*, a crown; in reference to the construction of the fruit. Green-house evergreen shrubs from the Cape of Good Hope. The bracts of the flowers of *A. eximium* are of a rich rosy tint, and are incurved so as to form close heads, bearing some resemblance to Strawberries. It has been long introduced but is comparatively rare in cultivation.

A'ster. Star-wort. Michaelmas Daisy. From *aster*, a star. Nat. Ord. *Compositæ.*

There are upward of one hundred and fifty species included in this genus, chiefly hardy herbaceous plants, useful for ornamenting the flower borders in the autumn; generally attaining a height of from two to four feet, and producing white, purple or blue flowers. They are easily increased by separating the old stools. The well-known German and China Asters are now classed under *Callistephus.*

ATA

The sweet, musk-scented plant known as *Aster Argophyllus* is now placed under *Eurybia*, which see.

Asti'lbe. From *a*, privative, and *stilbe*, brightness; flowers not very striking. Nat. Ord. *Saxifragaceæ.*

A. Japonica, sometimes called *Spiræa Japonica, Hoteia Japonica* and *A. barbata*, is a native of Japan, and a perfectly hardy herbaceous plant. The dark green cut leaves form a handsome tuft, from which arise numerous crowded panicles of feathery white flowers. Excellent for forcing in pots, and fine for cutting. There is a variety with variegated foliage, green and yellow, not so vigorous in habit, but in all other respects similar. Propagated by division. See *Spiræa.*

Astra'galus. Milk Vetch. The ancient Greek name for some leguminous plant. Nat. Ord. *Leguminosæ.*

An extensive genus of hardy annuals, perennials, and deciduous trees and shrubs. Many of the species are beautiful plants for the flower garden. They are vigorous growers, and succeed in a well-drained, sandy soil. The genus is widely distributed, there being scarcely a country where it is not indigenous. The flowers are pea-shaped, and mostly yellow or purple. Several of our native species produce a fruit resembling green plums, that are edible. On the prairies they are called Ground Plums. *A. mollissimus*, popularly known as "Loco," or "Crazy Weed," is the notorious cattle-poisoning weed of Colorado and California. Cattle and horses eating it show many of the symptoms of drunkenness, and under certain circumstances the results are fatal. The gum-like substance called Tragacanth is the produce of several species growing in Persia, Asia Minor, and Kurdistan. The gum exudes naturally from the bark in the same way that gum exudes from the bark of Cherry or Plum trees. While many of the species are useful or ornamental, by far the larger number are troublesome weeds.

Astra'ntia. A genus of *Umbelliferæ.* Native of Europe and Western Asia, containing ten or twelve species. They are hardy herbaceous perennials, with black aromatic roots, and generally white or pink flowers. *A. Carniola* and *A. Major* are the most distinct and ornamental species, easily increased by root division.

Astroca'ryum. From *astron*, a star, and *karyon*, a nut; referring to the distribution of the fruit. Nat. Ord. *Palmaceæ.*

A small genus of Palms allied to *Cocos*, chiefly natives of the Upper Amazon. They have large pinnate leaves, and are armed with spines, sometimes a foot long, and exceedingly sharp. The fruit of some of the species furnishes food for cattle and swine. The young leaves of *A. vulgare* yield a fine thread, from which the best hammocks are woven.

Ata'ccia. Malay name. Nat. Ord. *Taccaceæ.*

There are few more remarkable-looking plants than *A. cristata*, sometimes met in the gardens under the incorrect name of *Tacca integrifolia.* It has a short, conical, underground caudex, or rhizome, and produces from this caudex three or four large, oblong, acuminate, purplish-green stalked leaves.

The scape is about as long as the leaves, erect, stout, angled, dark purple, terminated by a large four-leaved involucre, of which the two outer leaflets are dark purple, and the two inner much larger, placed side by side, green with a deep purple base and stalk. The species are remarkable for their curious structure, but are of no value as flowering plants, or for economic purposes.

Atama'sco Lily. See *Zephyranthes.*

Athana'sia. Ornamental green-house evergreen shrubs, belonging to the Nat. Ord. *Compositæ.* They have yellow flowers, lasting a long time in perfection. Natives of the Cape of Good Hope.

Atherospe'rma. Plume Nutmeg. From *ather,* an awn, and *sperma,* a seed; the seed awned. Nat. Ord. *Monimiaceæ.*

A beautiful green-house evergreen tree, with the aspect of a stately conifer. Flowers white, in panicles, the leaves being strongly musk-scented. A native of New Holland, readily propagated by cuttings. Introduced in 1824.

Athy'rium. A small genus of ferns, until recently included in *Asplenium. A. Goringianum pictum* is a beautiful half-hardy deciduous variety from Japan.

Atlee Gall. A gall nut produced abundantly by *Tamarix orientalis,* which is called Atlé by the Egyptians. It is filled with a deep scarlet liquid.

Atra'gene. A genus of ornamental, hardy, climbing, deciduous shrubs, closely allied to Clematis, and belonging to Nat. Ord. *Ranunculaceæ.*

They occur in the temperate regions of the Old and New Continent. *A. Americana* (Syn. *Clematis verticillaris*) is found in Western New England, Virginia and Wisconsin. *A. alpina,* blue, and its white variety, are not uncommon in cultivation.

Atrapha'xis. A genus of *Polygonaceæ.* Natives of Asia and the Cape of Good Hope, consisting of low shrubs with rigid, much branched, often spiny stems. A few species are cultivated as green-house plants, but the most interesting, *A. Spinosa,* is perfectly hardy and forms a dense shrub, which when covered with flowers is very showy. It is an excellent plant for the rock-garden, growing well in any situation. Syn. *Tragopyron.*

A'triplex. Orache, Mountain Spinach. From *ater,* black, and *plexus,* woven together; on account of the dark color and habit of some of the species. Nat. Ord. *Chenopodiaceæ.*

A. hortensis, the only species of interest, is a tall-growing, hardy plant, annual, known in our gardens as *Orache.* It is but little grown in this country, but very popular in France. It is a native of Tartary, introduced into France in 1548. It grows freely with ordinary garden culture. Seeds are sown in both spring and fall to secure a succession.

A'tropa. Deadly Nightshade. Named after *Atropos,* one of the Three Fates. Nat. Ord. *Solanaceæ.*

A small genus of hardy herbaceous perennials and evergreen shrubs, remarkable for their poisonous properties. *A. Belladonna,* one of the best known species, is a hardy herbaceous plant, indigenous to shady grounds and waste

places in Southern Europe and Western Asia, also in Great Britain. The root is thick, whitish and perennial, sending forth annually a strong, branched, purple-colored stem, from three to five feet high. The leaves are of unequal size, and are entire, oval-pointed, standing in pairs on very short footstalks. The flowers are large, bell-shaped, pendant, and of a brown purple hue; appearing in June or July, and are succeeded by round, purple berries, which ripen in September. All parts of the plant are poisonous. It is supposed to have been the plant which produced such remarkable and fatal effects on the Romans during their retreat from the Parthians, under Mark Antony, as recorded in Plutarch's Life of Antony. Buchanan relates the destruction of the army of Sweno the Dane, when it invaded Scotland, by the berries of this plant. They were mixed with the drink which the Scots, according to the terms of the truce, were to supply to the Danes, which so intoxicated them that the Scots killed a greater part of Sweno's army while asleep. The extract of Belladonna is extensively used in the Homœopathic practice of medicine, in cases of fever, and also as a diuretic. Dr. Milno remarks, that nature has been more parsimonious in her warnings in respect to this plant, than to others of the same natural family. Neither the smell nor the taste is offensive, and if the color of the flowers proves in some degree a repellant, that of the fruit, on the other hand, is in an equal degree, at least, attractive and inviting.

Attale'a. From *attalus,* magnificent; in reference to the beauty of these Palms. Nat. Ord. *Palmaceæ.*

A genus of very beautiful Palms allied to *Cocos.* With one or two exceptions, they are natives of Brazil. *A. funifera* yields a black fiber resembling whalebone, an article of considerable commercial value as a material for making brooms and brushes. It is popularly known as Piassaba Palm. The nuts of this species are very hard, about four inches long, finely mottled, dark and light brown, and are highly esteemed for turning into knobs, umbrella handles, and various other purposes. *A. Cohune* furnishes Cohoun nuts, from which is extracted Cohoun oil, used for burning, for which purpose it is superior to cocoanut oil. The species are too large for green-house cultivation.

Attenuated. Tapering gradually to a point.

Aubergine, Egg Plant. *Solanum melongena var. ovigerum.*

Aubrie'tia. Named after *M. Aubriet,* a French botanical draughtsman. Nat. Ord. *Cruciferæ.*

A genus of pretty little plants, generally about three inches high, admirably adapted for pots or miniature rock-work; the flowers are purple, and appear in March. They are readily propagated by division. Natives of the South of Europe, introduced in 1710.

Au'cuba. The name of the shrub in Japan. Nat. Ord. *Cornaceæ.*

A genus of hardy evergreen shrubs from Japan, useful, and highly prized for their vigorous habit, rapid growth, and capability of enduring, and even thriving in, the atmosphere of cities. The flowers are inconspicuous, but since the introduction of the male

or pollen-bearing plant, by Robert Fortune, to England in 1861, we have been enabled to secure the beautiful coral-red berries, which are borne in profusion, and render the bushes exceedingly ornamental. The conspicuously marked foliage of *A. Japonica variegata*, which is green and yellow, admirably adapts it for the shrubbery border, or as a single plant upon the lawn. This variety is not usually hardy north of Washington. Propagated by cuttings, which root freely in sand. Introduced in 1783.

Aurantia'ceæ. The Orange, Lemon, and similar fruits are produced by trees belonging to this natural order. They are all bushy or woody plants, having the leaves filled with transparent oil cysts, giving them a dotted appearance, and a fruit more or less pulpy. Less than 100 species are known. The genera are almost exclusively found in the East Indies, whence they have, in some cases, spread over the rest of the tropics.

Aureus. Of a bright golden color, composed of yellow with a small portion of red.

Auricle. An ear.

Auricomus. A head or tuft, like hair, of a golden color.

Auricula. See *Primula auricula.*

Auriculate. *Auricled.* Having ear-like appendages, as in the case of many leaves, as in *Jasminum auriculatum.*

Auriculately-sagittate. Eared at the base, so as to give the leaf the appearance of the head of an arrow.

Austra'lis (Southern). This term is frequently applied to plants which grow in warm climates, without regard to their being strictly confined to the southern hemisphere.

Autumn Bell Flower. *Gentiana Pneumonanthe.*

Ave'na. Oat. A name of obscure origin. Nat. Ord. *Graminaceæ.*

A genus of grasses of which the common Oat, *A. sativa*, is the best known, and which is invaluable in agricultural economy. There are several species of Oats, and a vast number of varieties. The nativity of the Oat is accredited to Mesopotamia; this is, however, a matter of conjecture. The quality and appearance of the Oat vary greatly when grown on different soils and in different climates. The justly celebrated Norway Oat loses its distinctive character when grown in the warm, dry climate of the Middle New England States, and seed has consequently to be imported every season, in order to keep the crop up to the high standard claimed for it. The Naked or Hull-less Oat is *A. nuda*, found growing wild in many parts of Europe, and considered merely a degeneration of the common Oat. A very fine variety of this species has been introduced from China, but its merits as a farm crop have not been fully tested. *A. sterilis*, a native of the South of Europe, is the Animated Oat of the gardens. The "animation" is produced by the contraction and expansion of the awns, which cause the seed to crawl a short distance. Moisture from dews is sufficient to produce this slight motion.

Avens. *Geum urbanum.*

Avenues in Landscape Gardening. In forming an avenue, a gradual winding line should above all be obtained, which must in no way interfere with the view from the house. An old authority on this subject says that "there never should be any deviation from a straight line unless for some real or apparent cause," so in a winding or curved line a tree, rock or building must be placed at the bends as a reason for going around such obstacles. Twelve to fifteen feet is the width usually allowed for the road, but this depends upon individual taste; this remark also applies to planting in double rows, the trees forming a series of triangles; or in single rows. The distance across the road from one row of trees to those opposite should be at least twenty-five feet. The Lime or Linden tree is extensively used for avenues, on account of its regular growth and the shade it affords. The American and English Elms are also valuable trees for this purpose. The Horse Chesnut in sheltered spots, is very ornamental, and the various species of Maples and Planes, are unsurpassed for this purpose. The Spruce and other Firs are also much used and are eminently suited for avenue planting. Groups of shrubs and herbaceous plants may be introduced between the trees, and so remove any bareness that may occur.

Avocado Pear. *Persea gratissima.*

Awl Tree. *Morinda citrifolia.*

Awl-wort. *Subularia aquatica.*

Axil, Axilla. The angle formed by the union of the leaf and stem or other organs; the point on the stem from which a leaf proceeds.

Aza'lea. From *azaleos*, dry; in reference to the habitation of the plant. Nat. Ord. *Ericaceæ.*

Beautiful flowering plants, natives of North America, Turkey, and China. The American or Hardy Azaleas, *A. calendulacea*, *A. nudiflora* and *A. viscosa*, with hosts of garden varieties bred from them, are inhabitants of all our best shrubberies, and have been so wonderfully improved by seedling culture as to throw into the shade the original species; there can now be selected twenty or thirty varieties better than the very best of the original species. Every year, too, adds to the diversity of sorts and to the size of the flowers which is one of the characteristics of the improved kinds. In many places they thrive in the common soil of the garden, but, in general, they require leaf mould to be dug in with the natural soil; and where there is to be any quantity grown, or a nursery of them made, beds of leaf mould, or composts of the greatest part of this, must be made up. They are raised from seed sown in beds in the open air, but from its extreme diminutiveness, many prefer sowing in pans and wide-mouthed pots. When they are large enough, they should be planted out in beds six inches apart. The second year every alternate plant may be taken out and planted elsewhere, to make room; and as they increase in size they should have more room. They are propagated chiefly by grafting and by layers, but cuttings of the last year's wood will root readily in sand. *A. Pontica* is a native of Turkey. *A. Indica* (the Chinese Azalea) and its varieties are those we meet with in the green-house. The florists' catalogues abound with rare

sorts, the results of careful and skillful cross-fertilization. We are largely indebted for our finer sorts to the nurserymen at Ghent, Belgium. They are increased easily in spring by cuttings of the half-ripened young shoots.

Aza'ra. Named after *J. N. Azara*, a Spanish promoter of botany. Nat. Ord. *Flacourtiaceæ*.

A genus of evergreen shrubs, natives of Chili. *A. Gilliesii*, is the most desirable species. Its leaves are evergreen, somewhat resembling the Holly; flowers yellow, produced in axillary clusters. Propagated by cuttings. Introduced in 1844.

Azo'lla. A very curious genus of aquatic cryptogamous plants found floating upon the water, forming green or reddish patches, throwing down rootlets on the under side, amongst which are situated, principally in the axils of the leaves, the organs of fructification. The species occur in Australia, and New Zealand. The only native species, *A. Caroliniana*, is found in still water, from New York to Wisconsin, and southward.

B.

Babia'na. From *babianer*, the Dutch for baboon; in reference to the bulbs being eaten by baboons. Nat. Ord. *Iridaceæ*.

A genus of Cape plants, with solid bulbs or corms, which are eaten by the Hottentots, and which, when roasted, are said to resemble chestnuts. All the species have showy flowers, of various colors, blue predominating. Some of the varieties are finely variegated. They succeed in very sandy loam, and may be grown either in pots for ornamenting the green-house, or planted in a cold frame, where, if protected from frost in winter, they may be allowed to remain altogether. They increase rapidly by offsets. Introduced from the Cape of Good Hope in 1757.

Babingto'nia. Named in compliment to Charles Babington, of Cambridge, England, a distinguished botanist. Nat. Ord. *Myrtaceæ*.

B. camphorosmæ, the only species of importance in this genus, is a graceful green-house shrub from New Holland. It is of easy cultivation and produces flowers freely during the summer months, in terminal clusters, color white or pinkish. The branches have a drooping habit, giving the plant a graceful outline. Propagated by cuttings. Introduced in 1842.

Baby's Breath. See *Muscari;* also a local name for *Gypsophila paniculata*.

Baccate. Having a pulpy or succulent texture; berried, fleshy.

Bac'charis. Groundsel-tree. From *Bacchus*, the god of wine; referring to the spicy odor of the roots. The ancients sometimes boiled down their wines and mixed them with such spices. Nat. Ord. *Compositæ*.

This genus consists of upward of 200 species, all South American except three, two of which are found from Massachusetts southward, and the third in California. They are tall-growing shrubs, and distinguished from their allies by having the male flowers on one plant and the females on another. The fertile plant of the native *B. halimifolia* is very conspicuous in the autumn by its very long and white pappus. There is a singular and remarkable fact in relation to one of the species, *B. Douglassi*, which is found in California and in Chili, without being found in any intervening place. The medicinal properties of some of the South American species are highly esteemed for fevers and rheumatism.

Bachelor's Buttons. A garden name given to the flowers of *Centaurea Cyanus*, *Globe Amaranthus*, and to the double-flowering buttercup, *Ranunculus acris, fl. pl.*

Ba'ctris. From *baktron*, a cane; the young stems being used for walking sticks. Nat. Ord. *Palmaceæ*.

A genus comprising several species of slender-growing palms, inhabiting the West Indies, Central and South America. They do not rank with the handsomest of palms, although when young they are of an ornamental character. *B. integrifolia*, a native of Rio Negro, is an elegant species, with a slender reed-like stem, producing a small crown of dark-green leaves, densely armed with long, flat, black spines. It can be used with beautiful effect for table decoration. *B. Maraja*, the Marajah Palm of Brazil, grows upon the banks of the Amazon and other rivers. It is the largest species of the genus, its trunk attaining the height of fifty feet. It is thickly armed with spines, and has a succulent, rather acid but agreeably-tasted fruit, from which a vinous beverage is prepared. *B. minor*, has a stem from twelve to fifteen feet high, and seldom more than an inch in diameter. Its stems are very smooth, and are used for walking-sticks.

Bæ'ria. In honor of Professor Baer of the University of Dorpat. Nat Ord. *Compositæ*.

A genus of bright yellow Californian annuals, with solitary terminal flowers about one inch across. They are pretty and desirable, *B. chrysostoma* being of dwarf, slender, erect habit, and very showy. Propagated by seeds sown in spring.

Bahi'a. Name probably from the port of Bahia in South America. Nat. Ord. *Compositæ*.

B. lanata, the only described species, is an ornamental, hardy herbaceous perennial, much branched from the base of the stem, and having a greyish appearance. It produces its large yellow flower heads in great profusion, and is readily increased by seeds or division.

Bala'ntium. A name proposed for a genus of Ferns, now considered synonymous with *Dicksonia*.

Bald Cypress. See *Taxodium distichum*.

Balloon Vine. See *Cardiospermum*.

BAL

Ballo'ta. Fetid Horehound. From *ballo*, to reject; in allusion to its offensive odor. Nat. Ord. *Labiatæ*.

A small genus of mere weeds, occasionally met with in the Eastern States, having found their way from Europe, where they are natives.

Ball Thistle. Another name for *Globe Thistle*.

Balm. *Melissa officinalis.* A perennial herb often used in the manufacture of a drink for sick persons, and sometimes employed for culinary purposes.

Bee. *Monarda didyma.*
Field. *Calamintha nepeta.*
Indian. *Trillium pendulum.*
Of Gilead. *Cedronella triphylla.*
Of Gilead Tree. *Balsamodendron Gileadense*, and *Populus balsamifera var. candicans.*
Of Heaven. *Oreodaphne Californica.*

Balmony. One of the popular names of *Chelone glabra.*

Balsam. Ladies' Slipper. *Impatiens Balsamina.* A well-known, tender annual, a native of India. It is one of the showiest and most popular of summer flowers, blooming as it does till the advent of frost. Numerous handsome varieties are grown, the prevailing colors of which are red and white, the former extending to every shade of purple, crimson, scarlet, rose, lilac, and carnation or flesh-color; but some of the most superb sorts are elegantly spotted with white. The spotted varieties form a class by themselves, and are justly regarded as among the most brilliant ornaments of the garden; there are the crimson, scarlet, rose, purple, and violet-spotted. Another class is striped, after the manner of Carnations, with purple, crimson, rose, scarlet on pure white grounds, some with one color, others with two or more colors, and some are curiously mottled and striped. The most improved varieties are very double, and styled Camellia-flowered by the French. Some of the flowers are almost as perfect and as double as those of the Camellia, and nearly as regular in shape. The Germans call them Rose-flowered, as many of them approach the perfection of that flower in shape and fullness. There is a class of Dwarf Balsams that do not grow over a foot high, but very full and bushy in habit. They do not produce flowers so double as the Camellia or Rose-flowered varieties, but are desirable for the garden. They should not be planted with the tall varieties, which attain the height of two or three feet, when properly cultivated. The only way to propagate the Balsam is from seeds, which do not always produce kinds exactly the same as the parent, but approach very near, when great care has been taken to keep the different varieties by themselves, as is now practiced by those who make a business of raising the seed. Careful growers of Balsams, who wish to raise prize flowers, never use seed less than three years old; and they are particular in saving it from the most double and handsomest flowers, the best being those which have their colors distinctly marked, like a Carnation. Introduced from the East Indies in 1596.

Balsam. A name given to various gum-resinous or oleo-resinous substances. Bayee Balsam, a product of *Balsamodendron pubescens.*

BAM

Canadian Balsam, a product of *Abies balsamea.* Carpathian Balsam, a product of *Pinus Cembra.* Copalm Balsam, a product of *Liquidambar styraciflua.* Hungarian Balsam, an oleo-resinous product of *Pinus Pumilio.* Balsam of Acouchi, a product of *Icica Aracouchini.* Balsam of Copaiva, an acrid production of various species of *Copaifera.* Balsam of Maria, a product of *Verticillaria acuminata.* Balsam of Peru, a product of *Myrospermum Peruiferum.* Balsam of Quinquino, a product of *Myrospermum pubescens*, sold as White Balsam. Balsam of Tolu, a product of *Myrospermum toluiferum.* Balsam of Umiri, a product of *Humirium floribundum.* Tamacoari Balsam, a product of a Brazilian species of *Caraipa.* White Balsam, the same as the Balsam of Quinquino above.

Balsam Apple and **Balsam Pear.** See *Momordica.*

Balsam Fir. See *Abies.*

Balsami'neæ. A tribe of plants belonging to the order *Geraniaceæ*, sepals and petals all colored, consisting of six segments one of them ending below in a conical spur. The best known genus is *Impatiens.*

Balsa'mita. A genus of *Compositæ*, of but little interest, only that it contains the well known Costmary, or Alecost, *B. vulgaris*, a native of Italy; although common in every village garden in Britain and on the continent it is almost entirely discarded for culinary purposes, and even in France it is only used occasionally to mix in salads. This plant is the *Pyrethrum tanacetum* of Linnæus.

Balsa'mode'ndron. From *balsamon*, an old Greek name for balm or balsam, and *dendron*, a tree. Nat. Ord. *Burseraceæ.*

A genus of balsam-bearing trees with small green, often uni-sexual flowers. *B. myrrha* is supposed to yield some of the gum resin known as myrrh, others produce Balm of Gilead, or Balm of Mecca; a gum resin obtained by incision into the bark, and considered by the ancients as a panacea for almost all the ills that flesh is heir to.

Balsam Tree. A common name for *Balsamodendron*, and *Clusia.*

Canada. *Abies balsamea* and *Pinus Fraseri.*
Copalm. *Liquidambar Styraciflua.*
Florida. *Amyris Floridana.*
Hungarian. *Pinus Pumilio.*
Jamaica. *Clusia flava.*

Balsam Weed. A popular name for *Gnaphalium polycephalum*, a native plant used in the manufacture of paper.

Bamboo. Australian. *Poa ramigera.*
Blow-pipe. *Arundinaria Schomburgkii.*
Common. *Bambusa arundinacea.*
Fortune's. *Bambusa Fortunei.*
Metake. *Bambusa Japonica.*
Sacred. *Nandina domestica.*

Bambu'sa. Bamboo Cane. From *bambu*, its Indian name. Nat. Ord. *Graminaceæ.*

A genus of gigantic reeds, common throughout Southern China and Japan. *B. arundinacea* is the species of greatest importance. When growing it has the appearance of an immense sheaf of wheat standing on end. It grows in large tufts or clumps, some of them upwards of sixty feet in height, and the quantity of canes which they yield is simply

enormous. The cane is porous in the center and partly hollow. Externally the epidermis is composed of a hard wood, into which silex enters so largely that it will strike fire with a steel like a piece of flint. Although this plant grows spontaneously and most profusely in nearly all the immense southern districts of the Chinese Empire, yet the Chinese give the cultivation of this reed great care and attention. They have treatises and whole volumes solely on this subject, laying down rules derived from experience, and showing the proper soils, the best kinds of water, and the seasons for planting and transplanting the useful production. The variety of purposes to which the Bamboo is applied is almost endless. The Chinese use it, in one way or other, for nearly everything they require. The sails of their ships, as well as the masts and rigging, consist chiefly of Bamboo, manufactured in different ways. Almost every article of furniture in their houses, including mats, screens, chairs, tables, bedsteads, and bedding, are made of the same material; and in some sections entire dwellings are constructed of Bamboo. Fine paper is made from the fiber of this plant. In short, scarcely anything is to be found in China either upon land or water, into the composition of which Bamboo does not enter. The same extensive use is also made of this reed in Japan, Java, Sumatra, Siam, and other Eastern countries.

Bana'na or Plantain Tree. *Musa Sapientum.*
Abyssinian. *Musa Ensete.*
Dwarf Chinese. *Musa Cavendishii.*

Banded Rush. See *Scirpus.*

Bane-berry. See *Actæa spicata.*

Bane-wort. *Atropa belladonna.*

Baniste'ria. A name applied to a genus of the natural family, *Malphighiaceæ*, consisting of trees or shrubs, frequently climbing. They are natives of Brazil and the West Indies. Several are in cultivation for the sake of their pretty, yellow flowers and in some instances, fine foliage. Propagated by cuttings.

Ba'nksia. A genus of *Proteaceæ*, established by the younger Linnæus in honor of *Sir Joseph Banks.* Green-house evergreens principally grown for the beauty of their foliage, which is remarkable for its harsh, rigid coriaceous character. The leaves are generally dark green on the upper surface and clothed with a white or rufous down beneath, their margins being either deeply serrated or spinous, rarely entire. This genus is peculiar to Australia and contains upwards of fifty species.

Banner Plant. The genus *Anthurium.*

Banyan Tree. See *Ficus indica.*

Baobab Tree. See *Adansonia digitata.*

Ba'phia. Camwood. Barwood. From *baphe*, a dye, referring to the use of the wood in dyeing. Nat. Ord. *Leguminosæ.*

B. nitida, the only species, produces the Camwood or Barwood of commerce. It is an evergreen tree, growing to the height of fifty feet, with shining green leaves, composed of two pairs of leaflets and an odd one. Its flowers are yellow, and bear some resemblance to the common laburnum. It is a native of Sierra Leone, and forms an important article of commerce.

The native women on the west coast of Africa use the pounded wood for painting their bodies; amulets are also made of it, and it is used in their Fetish ceremonies. Introduced in 1793.

Bapti'sia. From *bapto*, to dye; some of the species possessing dyeing properties. Nat. Ord. *Leguminosæ.*

This genus of native plants (commonly called False Indigo) are rather pretty for the border. Flowers are white, blue or yellow. They grow in any good garden soil, and are increased by division.

Barbace'nia. Named after *M. Barbacena*, a Governor of Minas Geraes. Nat. Ord. *Amaryllidaceæ.*

Very pretty and singular herbaceous perennials. *B. purpurea*, has flowers of moderate size, of the richest velvety purple imaginable, leaves narrow, long, and drooping in the way of *Pandanus graminifolius.* "Lindley" says that they are capable of existing in a dry, hot air, without contact with the earth, on which account they are favorites in South American gardens, where, with Orchids and Bromeliads, they are suspended in the dwelling houses, or hung to the balustrades of the balconies, in which situation, they flower abundantly, filling the air with their fragrance.

Barbadoes Cherry. *Malpighia glabra.*

Barbadoes Gooseberry. See *Pereskia.*

Barbadoes Lily. *Hippeastrum equestris.*

Barbadoes Pride. *Adenanthera Pavonina.*

Barbare'a. Winter Cress. So named on account of its having been formerly called the Herb of St. Barbara. Nat. Ord. *Cruciferæ.*

B. vulgaris is a hardy herbaceous plant, in early days esteemed as a salad. It closely resembles the common Water Cress, but grows on dry soils. Its use is now discarded. It is a native of Europe, and has become naturalized in some parts of this country.

Barbate. Having long, soft hairs in one or more tufts.

Barberry. See *Berberis.*

Barbs. Hooked hairs.

Barcla'ya. A singular genus of East Indian aquatics, belonging to the Nat. Ord. *Nymphæaceæ.*

They bear but little resemblance to the ordinary water-lilies, though botanically allied. As botanical specimens they are very interesting; as flowering plants they are not likely to occupy a very prominent place in the list of ornamental plants.

Bark. All the outer integuments of a plant beyond the wood, and formed of tissue parallel with it. It is also the officinal name given to the cortical layers of various plants, used chiefly for medicinal and tanning purposes. The name is, *par excellence*, applied to the Peruvian or Cinchona barks, the source of Quinine. Of these there are many varieties, namely: Calisaya Bark, Royal Yellow, *Cinchona Calisaya;* Light Calisaya, *C. Bolivi-ana, C. scrobiculata;* Peruvian Calisaya, *C. scrobiculata (Delondriana);* Carabaya Ash, Jaen, *C. ovata;* Dark Jaen, *C. villosa;* Hard Carthagena, *C. cordifolia*, Woody Carthagena, *C. Condaminea;* Spongy Carthagena, Coquetta, Bogota, *C. lancifolia, (Condaminea);* Crown,

C. Calisaya; Select Crown, *C. chahuanguera;* Ashy Crown, *C. macrocalyx, C. rotundifolia;* Fine Crown, *C. crispa;* Loxa Crown, *C. Condaminea;* Wiry Crown, *C. hirsuta;* Cinnamon, *C. coccinea;* Cusco, Ariza, *C. pubescens;* Red Cusco, St. Ann's, *C. scrobiculata;* Huanuco, Gray, *C. micrantha, C. glandulifera, C. nitida;* Original Loja, *C. uritusinga;* Negrilla, *C. heterophylla;* Red, *C. conglomerata;* Genuine Red, *C. succirubra;* Spurious Red, *C. magnifolia.* The principal sorts are sometimes classed thus: Gray Barks: Crown or Loxa, *C. condaminea, C. scrobiculata, C. macrocalyx;* Lima, Huanuco, Silver, *C. micrantha, C. lanceolata, C. glandulifera,* and probably *C. purpurea.* Red Barks: *C. nitida.* Yellow Barks: *C. Calisaya, C. micrantha, C. Condaminea, C. lancifolia.* Rusty Barks: *C. hirsuta, C. micrantha, C. ovilafolia,* and probably *C. purpurea.* White Barks: *C. ovata, C. pubescens, C. cordifolia.* For a complete account of the medicinal Cinchona Barks, see Mr. Howard's splendid volume, entitled, "*The Nueva Quinologia of Pavon.*"

The following Barks are also employed officinally or economically: Alcornoco or Alcornoque, the astringent bark of several species of *Byrsonima,* or, according to some authorities, of *Bowdichia virgillioides.* Angostura Bark, the febrifugal bark of *Galipea Cusparia* or *G. officinalis.* Babul Bark, the astringent bark of *Acacia Arabica.* Bastard Cabbage Bark, the bark of *Andira inermis;* the same as Worm Bark. Bastard Jesuit's Bark, the bark of *Iva frutescens.* Bonace Bark, the bark of *Daphne tinifolia.* Canella Bark, the stimulant aromatic bark of *Canella alba.* Caribæan Bark, the astringent bark of *Exostemma caribæum.* Cascarilla or Sweet Wood Bark, the aromatic bark of *Croton Cascarilla* and *C. pseudo-China.* China Bark, the febrifugal bark of *Buena hexandra.* Conessi Bark, the astringent bark of *Wrightia antidysenterica.* Culilawan Bark, the aromatic stimulant bark of *Cinnamomum Culilawan.* Eleuthera Bark, the aromatic bark of *Croton Cascarilla.* False Angostura Bark, the bark of *Strychnos nux-vomica.* French Guiana Bark, the febrifugal bark of *Portlandia hexandra.* Hemlock Bark, the astringent bark of *Tsuga Canadensis,* used for tanning leather. Jesuit's Bark, the same as Peruvian Bark. Juribali Bark, an astringent bark of Demerara, supposed to be the produce of some Cedrelaceous plant. Melambo Bark, the aromatic febrifugal bark of some species of *Galipea,* or one of its allies. Mesereum Bark, the acrid, irritant bark of *Daphne Mezereum.* Monesia Bark, the bark of some South American *Sapotaceæ.* Muruxi Bark, the astringent bark of *Byrsonima spicata,* used by the Brazilian tanners. Niepa Bark, the febrifugal bark of *Samadera Indica.* Ordeal, Sassy, or Saucy Bark, is the poisonous bark of *Erythrophlæum guineense,* of Sierra Leone. Panococo Bark, the sudorific bark of *Swartzia tomentosa.* Quercitron Bark, the yellow dye bark of *Quercus tinctoria.* Quillai Bark, the bark of *Quillaia saponaria,* used as a substitute for soap. Sassafras Bark, is the aromatic bark of *Atherosperma moschata.* Stringy Bark of Tasmania, *Eucalyptus gigantea.* Sweet Wood Bark, the same as Cascarilla Bark. Nine Bark, an American name for *Spiræa opulifolia.* White Wood Bark, the same as Canella Bark. Winter's Bark, the tonic aromatic bark of

Drymis Winteri. Worm Bark, the bark of *Andira inermis,* formerly used as an anthelmintic. There are other barks, but these are the principal ones having a commercial or medicinal value.

Barke'ria. After the late *Mr. Barker,* of Birmingham, Eng., an ardent cultivator of Orchids. Nat. Ord. *Orchidaceæ.*

A small genus of very beautiful epiphytal Orchids, natives of Mexico and Central America. They closely resemble the well-known genus *Epidendrum. B. spectabilis,* called in Guatemala, Flor de Isabel, is the finest species. It is one of the votive offerings of the Catholics in that country. The plants should be grown in baskets of moss in a warm house. They are increased by division. Introduced in 1843.

Barle'ria. After the *Rev. J. Barrelier,* of Paris. Nat. Ord. *Acanthaceæ.*

A large genus of herbs and shrubs, natives of the tropical regions of both the Old and the New Worlds. The flowers are purple, yellow, orange, or white, produced in axillary or terminal spikes or heads. But few of the species have been introduced into the garden or green-house. *B. cristata,* a native of the East Indies, is a pretty little hot-house evergreen plant, bearing its purplish-lilac flowers in great profusion in summer, making it a desirable border plant. It is propagated by cuttings. Introduced in 1796.

Barley. The common name for *Hordeum vulgare,* which see.

Barna'rdia. Name in honor of *E. Barnard, F. L. S.* Nat. Ord. *Liliaceæ.*

A small genus of half-hardy bulbs from China and Japan. The flowers are pale blue, similar to the *Scilla,* and from the resemblance the finest species has been called *B. scillioides.* They require to be grown in a frame. Propagated by offsets. Introduced in 1819.

Barnyard Grass. The common name for *Panicum Crus-galii.*

Baro'sma. From *barys,* heavy, and *osme,* odor; referring to the powerful scent of the leaves. Nat. Ord. *Rutaceæ.*

A genus of evergreen, green-house shrubs, natives of the Cape of Good Hope, where the leaves are used by the Hottentots to perfume themselves with. The Bucku leaves of commerce, which are much used in medicine as a stimulant and tonic, are produced from several of the species.

Barren Flowers. The staminate, or male flowers of many plants, are popularly known as Barren flowers, and are generally produced, as in the case of cucumbers, melons, etc., by monœcious plants, that is, those having male and female organs in different flowers, but on the same plant. A good example of Barren flowers is seen in the ray-florets of many composite plants, such as the Thistle or Aster, which are frequently really neuter, having neither male nor female organs.

Barringto'nia. Named after the *Hon. Daines Barrington.* Nat. Ord. *Myrtaceæ.*

This genus consists of tropical evergreen trees, some of which are of large dimensions. They are found in many parts of India, but in the greatest numbers in the Malayan peninsula and the islands of the India Ocean; two species are found in N. Australia, and one on

the banks of the Zambesi River, in East Africa. Without exception they are beautiful objects when in flower.

B. speciosa, a native of the Moluccas, and one of the handsomest of the genus, attains a height of fifty feet, with a circumference of from ten to fifteen feet; it is generally found near the sea. From its seeds a lamp-oil is expressed; mixed with bait they are used to inebriate fish in order to facilitate their capture. The roots, bark, and seeds of the several species are much used in medicine by the native practitioners. Syn. *Stravadium.*

Barringto'nia'ceæ. A small order, now placed as a tribe of *Myrtaceæ.*

Barto'nia. Named after *Dr. Barton*, one of our distinguished botanists. Nat. Ord. *Loasaceæ.*

B. aurea, a native of California, is a splendid annual, with golden yellow flowers, which have quite a metallic luster when the sun shines upon them. The seed-pod is curiously twisted. Like all the California annuals, it is very apt to die off if the roots become at all withered by drought, or if the collar of the plant be exposed to the full heat of the sun; and thus it does best when grown in masses, so that the ground may be quite covered with its leaves. It succeeds best in a moist situation. Introduced in 1834.

Barwood. *Baphia nitida.*

Basal. Situated at the base of anything, or attached to the base of any organ or part.

Base'lla. Malabar Nightshade. Its Malabar name. Nat. Ord. *Chenopodiaceæ.*

A genus of climbing plants, mostly biennial. *B alba* and *B. cordifolia* are grown in the East Indies as pot-herbs, and are used as a substitute for Spinach. Some of them are also grown in France, to furnish the Paris market with summer Spinach, and they are grown for the same purpose in China. *B. rubra*, a variety of *B. cordifolia*, yields a rich purple dye. Some of the species have tuberous roots. *B. alba* is suitable for a suspended pot or basket, being quite pretty when in bloom. *B. lucida*, when in fruit, is a very interesting plant. Propagated by division and by seed.

Basella'ceæ. A series of usually herbaceous climbers, and considered a tribe of *Chenopodiaceæ.*

Basil, Sweet. *Ocimum Basilicum.* Which see.

Basil, Wild. The genus *Pycnanthemum.*

Basil Thyme. Common name for *Calamintha Acinos.*

Ba'ssia. Butter Tree. Named after *M. Bassi*, Curator of the Botanic Garden at Boulogne. Nat. Ord. *Sapotaceæ.*

Tall trees, natives of the hottest parts of the East Indies and Africa; the leaves are alternate, produced in terminal tufts. The trees are of considerable importance in their native countries. *B. butryacea* yields a thick, oil-like butter from its fruit. It makes good soap, and is adapted for burning. From the juice of the flowers a kind of sugar is prepared. The flowers of *B. latifolia*, the Mahwah Tree, are used as an article of food in India, and when dried keep good a long time. A good sized tree will continue to shed its blossoms for fifteen days, at the rate of one hundred pounds per day, which weight is reduced one-half in the process of drying.

A maund (eighty pounds) of dried Mahwah will furnish a fortnight's food to a family of two parents and three children. It is generally eaten with the seeds of the Sal Tree (*Shorea robusta*); a small quantity of rice being sometimes added. The fruit of the Illupie Tree, *B. longifolia*, yields oil for lamps and various other purposes; it is also used for food. *B. Parkii* is the Shea Tree, or Butter Tree, mentioned by Mungo Park in his travels. Some of the species furnish a very valuable timber for the mechanic arts.

Basswood or **Whitewood.** *Tilia Americana.*

Bast. A strong woody fibre, much used in some places for making brooms, brushes, etc., obtained from the leaf stalks of *Attalea funifera* and of *Leopoldinia Piassaba.* Also the inner bark of the Lime Tree, of which the Russian mats used in gardens are made. Cuba Bast is the fibrous inner bark of *Paritium elatum*, much used for tying up cigars, and by gardeners for tying up plants, etc., as is also the bast of the Lime Tree. Raphia, however, is now fast superseding these materials among gardeners for tying purposes. See Raphia.

Bastard, or **False Acacia.** *Robinia Pseudo-acacia.*

Bastard Pennyroyal. See *Trichostema dichotomum.*

Bata'tas. Its Indian name. Nat. Ord. *Convolvulaceæ.*

A somewhat extensive genus of tuberous-rooted climbing plants, tender or half-hardy. Some of the species are handsome greenhouse climbers, with large, purple, showy flowers. As the flowers fade quickly and have no commercial value, the species are rarely cultivated. The most interesting species is *B. edulis*, the well-known Sweet Potato, for description of which see *Potato.* The several species are natives of Mexico, South America and the East Indies.

Batema'nnia. In compliment to *James Bateman*, a celebrated English collector and cultivator of *Orchids*, and author of the "Orchidaceæ of Mexico and Guatemala." Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, most of which have small, inconspicuous flowers. *Batemannia Burtii* is a very rare and showy plant, from Costa Rica, with flowers three inches in diameter, of a reddish brown, with yellow spots, lip white and dark purple. They require to be grown in a house with moderate heat, and to be watered with great caution. Introduced in 1872.

Baue'ra. Named after two brothers, German botanical draughtsmen. Nat. Ord. *Saxifragaceæ.*

A genus of small green-house shrubs, natives of New Zealand and Australia. Their pale red or pink flowers are produced in the axils of the leaves in great profusion. They form very neat, pretty green-house evergreen plants, flowering nearly the whole year through. Easily increased by cuttings.

Bauhi'nia. Named after the brothers *John* and *Casper Bauhin*, botanists in the sixteenth century. Nat. Ord. *Leguminosæ.*

The numerous species that compose this genus are extensively diffused throughout the

BARTONIA.

BESSERA ELEGANS.

BAPTISIA.

BABIANA.

ANCHUSA.

BELLIS (DOUBLE DAISY).

BARBACENIA.

BEGONIA CORALLINA.

BEGONIA ARGYROSTYGMA.

BEGONIA (SINGLE TUBEROUS).

BEGONIA DIADEMATA.

BEGONIA METALLICA.

BEGONIA REX VAR.

tropics, particularly in Brazil and India. They are generally climbers, frequently attaining a gigantic size; some few, however, form trees, or large shrubs. *B. tomentosa* is a native of Ceylon, where it forms a small tree, growing about fifteen feet high, and having pale, yellow flowers, spotted with crimson, which has given rise to the superstitious idea that they were sprinkled with the blood of St. Thomas, hence the tree is called St. Thomas' Tree. *B. Vahlii* is the Maloo climber of India, a plant whose gigantic shrubby stems often attain a length of 300 feet, and climb over the tops of the highest trees in the forest, twisting so tightly round their stems that they not unfrequently strangle and cause death, the stems ultimately decaying and leaving a sheath of climbers standing in their place. The young shoots and leaves are covered with a rust-colored scurf, and are furnished with tendrils. The leaves are very large, often more than a foot in diameter, composed of two oval-shaped lobes joined together for about half their length, and heart-shaped at the base. The flowers are snowy-white, and arranged in racemes. The exceeding tough fibrous bark of this species is employed in India for making ropes, which, from their great strength, are used in the construction of the suspension bridges across the River Jumna. The bark of another Indian species is used for making the slow-matches used with native guns.

Bay-berry. See *Myrica cerifera.*

Bay Oak. *Quercus sessiliflora.*

Bay Rose. *Epilobium angustifolium.*

Bay Tree. *Magnolia glauca.*

Bay Tree. Poison. *Illicum Floridanum.*

Bay Tree. Rose. *Nerium Oleander.*

Bay Tree. Sweet. *Laurus nobilis.*

Beach Grass. See *Ammophila.*

Beach Pea. The common name of *Lathyrus maritimus*, a species growing plentifully in New Jersey and northward.

Bead Tree. See *Ormosia.*

Bean. *Phaseolus.* The varieties of our common Garden or Bush Bean have their origin in *P. vulgaris*, which is supposed to be a native of the East Indies, though there are none of the species found wild that in any way resembles the varieties under cultivation. The earliest notice that we have of the Kidney Bean is that given by Pliny, who calls them *Phaseoli*, and says the pod is to be eaten with the seed. "According to Diodorus Siculus, the Egyptians were the first to cultivate it, and to make it an article of common diet, yet they conceived religious notions concerning it which made them at length refrain from eating it. Their priests dared not either touch it or look at it. Pythagoras, who was educated among the Egyptians, derived from them their veneration for the bean, and forbade his disciples to eat it. He taught that it was created at the same time and of the same elements as man; that it was animated and had a soul, which, like a human soul, suffered the vicissitudes of transmigration. Aristotle explains the prohibition of Pythagoras symbolically. He says, that beans being the ordinary means of voting on public matters, the white bean meaning an affirmative, and the black a negative, therefore Pythagoras meant to forbid his disciples to meddle with political government. The Roman priests affirmed that the bean blossom contained infernal letters, referring to the dark stains on the wings, and it is probable that all the superstitions on the subject sprang from the fruit."—*Am. Ency.* This species was first cultivated in England in 1509, having been introduced from the Netherlands. Many varieties were known to Gerarde in 1590. The running or Pole Beans are of the species *P. multiflorus*, introduced from South America in 1663. (See *Phaseolus.*) The English Bean, so called by our seedsmen, and commonly known as Broad Windsor, is *Faba vulgaris var. macrosperma*, a genus that has been under cultivation as long as we have any records of gardening. It is supposed to have originated in Egypt, from the fact that the early Greek writers mention receiving it thence. Of this class there are many varieties, none of which succeed well with us.

Bean. The common name for *Faba.* Bog Bean, the Buckbean, *Menyanthes trifoliata.* Cujumary Bean, the tonic seed of *Aydendron Cujumary.* Egyptian or Pythagorean Bean, the fruit of *Nelumbium speciosum.* French or Bush Bean, *Phaseolus vulgaris.* Haricot Bean, the seed of *Phaseolus vulgaris.* Honey Bean, the seed-pods of *Gleditschia triacanthos.* Indian Bean, an American name for *Catalpa.* Kidney Bean, the common name for *Phaseolus*, especially for those kinds cultivated as esculents. Lima Bean, the popular name for *Phaseolus lunatus*, of which the Sieva or Southern Lima and its dwarf variety Henderson's Bush Lima Bean are evidently varieties. Locust Bean, the pod of *Ceratonia siliqua.* Molucca Bean, the seed of *Guilandina Bonducella.* Ordeal Bean of Old Calabar, the seeds of *Physostigma venenatum.* Ox-eye Bean, the seed of *Mucuna urens.* Pichurim Bean, a commercial name for the cotyledons of *Nectandra Puchury.* Sacred Bean, the common name for *Nelumbium.* Sahuca Bean, the seeds of *Soja hispida.* St. Ignatius's Bean, the seed of *Strychnos multiflora;* also a Brazilian name for the seeds of *Fevillea cordifolia.* Scarlet Runner Bean, the seed of *Phaseolus multiflorus.* Smoking Bean, the seed-pods of *Catalpa bignonioides.* Tonga or Tonquin Bean, the seed of *Dipterix odorata.* Underground Bean, *Arachis hypogœa*, commonly called Pea-nuts. Water Bean, an English name for the family of *Nelumbiaceæ.* Wild Bean, a common name for *Apios.* Algaroba Bean is *Ceratonia siliqua.* Asparagus Bean, or Yard Long, *Dolichos sesquipedalis.* Hibbert Bean, *Phaseolus lunatus* (same as Lima Bean). Horse or Field Bean, *Faba vulgaris var. equina.* Horse-eye Bean, *Mucuna urens.* Inga Bean, the pod of the Bastard Cassia. Malacca Bean is the seed of *Semecarpus anacardium.* Mesquit Bean, the seed of *Prosopis glandulosa.* Pigeon Bean is the small-seeded field Bean. Ram's Horn Bean is *Dolichos bicontortis.* Red Bean is *Vigna unguiculata.* Sea Bean, Florida Bean, a common name for the seed of *Entada scandens* and of *Ormosia dasycarpa.* Seaside Bean is *Canavalia obtusifolia* and *Vigna luteola.* Sugar Bean, *Phaseolus saccharatus* and *P. lunatus.* Sword Bean is *Entada scandens* and *Canavalia gladiata.* Tick Bean is the

common field Bean, *Faba vulgaris*. Tree Bean of Australia is *Bauhinia Hookerii*. Yam Bean is *Dolichos tuberosus*. Year Bean is *Phaseolus vulgaris*. Vanilla Bean is *Vanilla planifolia*, etc.

Bearberry. See *Arctostaphylos*.

Californian. *Rhamnus Purshianus*.

Beard Grass. See *Andropogon* and *Polypogon*.

Beard-tongue. A popular name of the genus *Pentstemon*.

Bear Grass. See *Yucca*.

Bear's Foot. *Helleborus fœtidus, H. viridis, H. niger, Aconitum napellus* and *Alchemilla vulgaris*.

Beato'nia. Named in honor of *Donald Beaton*, a celebrated Scotch gardener and writer. Nat. Ord. *Iridaceæ*.

A small genus of Mexican bulbs, allied to the *Tigridia*, and requiring the same treatment. Flowers purple, growing in pairs or singly on a stem about a foot high. Introduced in 1841. Propagated by offsets.

Beauca'rnea. A commemorative name. Nat. Ord. *Liliaceæ*.

A name given to a genus of Agave-like liliaceous plants, formerly described under the name *Pincenectitia*. The few known species are Mexican plants, with arborescent stems, remarkable for the large bulbiform swelling which, from the earliest stages of its growth, forms at its base; these support a spreading terminal crown of long narrow leaves. *B. recurvata*, is a noble conservatory plant when it has formed a large stem and full head of leaves; its flowers from 4,000 to 5,000 in number, are white, small, and fragrant, borne in a large terminal panicle, three or more feet in height. Beaucarneas are grown principally for the beauty of their foliage and are grotesque, graceful, and extremely curious in habit and form. They are also excellent subjects for sub-tropical or lawn decoration in summer. Propagated chiefly by imported seeds.

Beaufo'rtia. Named after Mary, Duchess of Beaufort. Nat. Ord. *Myrtaceæ*.

A small genus of very desirable green-house plants from New Holland. They should be grown in loam and sand in about equal quantities, and in a cool part of the green-house will flower splendidly. The flowers are scarlet, pink, or red. Propagated by cuttings of the half-ripened wood.

Beaumo'ntia. Named after *Mrs. Beaumont*, of Bretton Hall, Eng. Nat. Ord. *Apocynaceæ*.

This genus of green-house twiners has but few species, all natives of the East Indies. *B. grandiflora* is remarkable for its handsome flowers which are pure white, borne in terminal or axiliary corymbs. The plant is difficult of propagation, which is effected by cuttings. Great age is required to bring it into flower. When a large plant is obtained and grown under favorable circumstances, it has but few rivals. Introduced in 1820.

Beaver Poison. A common name applied to *Cicuta maculata*.

Beaver Tree or **Beaver Wood.** *Magnolia glauca*.

Bedding. This term is used by florists, mostly when plants are set out in what is known as the "Carpet," "Ribbon Line," or "Massing in Color" style of decorative planting. The

"Carpet Style" is that produced by planting low-growing plants of different colors and forms of leaves, to form carpet-like patterns. They must be such plants as present a smooth, well defined color, and not exceeding three or four inches in height. To produce the proper effect by this style of planting the plants must be set close enough to form a mass, covering the soil completely up, or the effect will not be so good. Bedding in "ribbon lines" is usually done along margins of drives or walks, in widths from one to ten feet, as desired, the plants used being such as to give the most pleasing contrast in color. The plants usually selected are such as will either form a slope to the walk by planting the highest at the back with the lowest growing in front, or else, if the line is a wide one, such as, by placing the highest plants in the center and the others on each side, will slope to each side of the line. But to keep the lines of color well defined and smooth, the plants must be carefully pinched back, so as to keep each line to its proper height. Bedding by "massing in color" is on the same principle, only that, instead of the plants being planted in lines, they are set in contrasting masses of different colors, in any number of shades desired, though the effect is most marked when but few colors are used in one bed. Large beds are often formed of one color, such as scarlet, maroon, blue, pink, or yellow, which, seen at a distance, in contrast with the green of the lawn, is by many more admired than when the colors are placed together.

Bed Straw. One of the common names of the genus *Galium*.

Bee Balm. *Mellissa officinalis*.

Bee Flower, or **Bee Orchis.** *Ophrys Apifera*.

Bee Larkspur. *Delphinium grandiflorum*.

Beech. American. See *Fagus ferruginea*.

Blue. *Carpinus Americana*.

Common. See *Fagus sylvatica*.

Beech-drops or **Cancer Root.** A common name of *Epiphegus Virginica*, a parasite that grows on the roots of Beech trees.

Beech Fern. *Polypodium Phegopteris*.

Beech Horn, or **Horst.** *Carpinus Betulus*.

Beef Steak Plant. *Saxifraga Sarmentosa*, and *Begonia Evansiana*.

Beef Wood. The genus *Casuarina*.

Beet, Chard, Sea-Kale, or **Spinach.** *Beta Braziliense*, and *B. Cicla*.

Beet. Red. *Beta vulgaris*, which see.

Befa'ria. In memory of *M. Bejar*, a Spanish botanist. Nat. Ord. *Ericaceæ*.

A genus of green-house evergreen shrubs, found in the Alpine districts of Peru and Mexico. They are mostly, extremely beautiful plants, and grow at a great height in the mountainous districts, often at the very extreme of vegetation. The genus is nearly related to *Rhododendron;* it is rarely cultivated. Syn. *Bejaria*.

Beggar's Lice. A common name of *Cynoglossum Morisoni*.

Beggar's Ticks. The common name of a very disagreeable weed, *Bidens chrysanthemoides*. It has received this distinctive name because the fruit adheres to anything with which it comes in contact.

Bego'nia. Named in honor of *M. Begon*, a French patron of botany. Nat. Ord. *Begoniaceæ*.

All the species of Begonia are interesting and beautiful winter ornaments of the hot-house or green-house, of the simplest culture in any rich soil if allowed an abundant supply of water. Cuttings may be struck without trouble. *B. Rex*, the type of the large-leaved sorts, and the most ornamental of the species, is best propagated by cutting the leaves in sections, each being so cut as to form a junction of the ribs at the lower end of the cutting. These should be laid in a damp, warm place, or on the propagating bench with good bottom heat; or a leaf, or a portion of one, may be laid flat in any shady place in the house. Within the last twenty-five years a new race of tuberous-rooted sorts has been introduced from the South American Andes, of which *B. rosæflora*, *B. Veitchii*, *B. octopetala* and *B. Boliviensis* are typical species, from which, by cross-fertilization and selection a large number of beautiful and almost hardy kinds have been raised. This is shown in the size, substance, and rich colors of the flowers of the majority of the plants of this race. They are equally valuable for the green-house or for out-door decoration in summer. The tubers should be kept warm and dry during the winter, from November to April, when they may be started into growth.

Bego'nia'ceæ. A natural order, comprising a large number of useful and ornamental garden plants. The only genera are *Begonia* and *Begoniella*. The species are common in the East and West Indies, and South America, and a few are found in Madagascar, and South Africa. They are said to possess bitter and astringent qualities.

Bellado'nna. See *Atropa Belladonna*.

Bellado'nna Lily. A common name for *Amaryllis Belladonna*.

Belleva'lia. In memory of *P. R. Belleval*, a French botanist. Nat. Ord. *Liliaceæ*.

A small genus of bulbous plants found in the Mediterranean region and in temperate Asia. They are perfectly hardy, growing freely under the same conditions in which the Grape Hyacinth, *Muscari*, is grown, and the finer species of which they closely resemble. Introduced in 1844.

Bell-flower. See *Campanula*.

Be'llis. The Daisy. From *bellus*, pretty; referring to the flowers. Nat. Ord. *Compositæ*.

Well-known perennials, of which *B. perennis*, the common Daisy, has been in cultivation in the British and Continental gardens from time immemorial. The most beautiful varieties are the large double, the large quilled, and the Hen-and-Chickens; but there are many others. In Germany numerous curious varieties have been raised by saving the seed of the handsomest kinds. Each sort is much improved by being taken up, divided, and replanted every autumn. They are all admirable plants for making edgings to borders, and they are well suited for growing in pots, though at present they are almost neglected. They thrive best in a loamy soil, richly manured, which should be dug over and well broken before planting, and they will bear transplanting even when in flower, provided they are taken up with a portion of soil attached. These pretty plants are seldom seen in our gardens in as great abundance as they deserve to be, which is owing, no doubt, to their being very impatient of our hot summers. They should therefore be grown in a shady and rather cool border.

Be'llium. A genus of pretty dwarf free-flowering plants, nearly related to the common Daisy, *Bellis perennis*, and requiring similar treatment. Excellent plants for rockwork or a similar situation.

Bell Pepper. See *Capsicum*.

Bellwort. See *Utricularia grandiflora*.

Bellworts. The English popular name for the Nat. Ord. *Campanulaceæ*.

Belope'rone. A considerable genus of *Acanthaceæ*, from Tropical America, containing many species of beautiful shrubs with large purple or blue flowers borne on terminal spikes; nearly allied to *Justicia*, and requiring the same treatment.

Bene. See *Sesamum*.

Bengal Quince. See *Ægle*.

Benjamin Bush. A popular name of *Lindera Benzoin*, which is also called *Spice Bush*.

Bent Grass. See *Agrostis*.

Bentha'mia. Named after *Mr. Bentham*, a distinguished English botanist. Nat. Ord. *Cornaceæ*.

A small genus of half-hardy evergreen shrubs, natives of northern India. The fruit makes it a conspicuous plant for the lawn. It is of a yellowish white color, about the size of a Raspberry, but not edible. *B. Japonica*, very much resembles the flowering Dogwood, blooming two months later in the season. Propagated from seeds or by cuttings.

Benzoin. A genus of native shrubs now known as *Lindera*, which see.

Berberida'ceæ. A natural order of shrubs or hardy perennials, with terminal or axillary flowers, usually racemose, with alternate, compound leaves. These plants are found in South America as far as the Straits of Magellan, and in the mountainous parts of the northern hemisphere. They are common in the northern provinces of India, but none are found in Africa, Australia, or the South Sea Islands. The fruit of some of the species is used as a preserve, and is sometimes eaten in a fresh or dried state. They possess acid, bitter, and astringent qualities, and oxalic acid occurs in some. The stem and bark of several species are used in dyeing yellow. The astringent substance called Lycium by Dioscorides is supposed to be furnished by the root of various species of Berberry, and a similar preparation is much used in India as a febrifuge. The pinnate-leaved Berberries form the sub-genus *Mahonia*. The order contains twelve genera and a hundred and ten species, among which are *Berberis*, *Leontice*, *Epimedium*, *Nandina*, *Jeffersonia*, etc.

Berberido'psis. From *Berberis*, and *opis*, like; resembling the Barberry. Nat. Ord. *Berberidaceæ*.

A small genus of half-hardy evergreen shrubs, natives of Chili. *B. corallina* is a handsome shrub of sub-scandent habit, thick,

leathery leaves, and drooping, many-flowered racemes of long-stalked, crimson-scarlet flowers. This species is perfectly hardy south of Washington, and is a shrub of remarkable beauty. Propagated by cuttings or from seed. Introduced in 1862.

Be'rberis. The Barberry. From *berberys*, its Arabian name. Nat. Ord. *Berberidaceæ.*

There are several varieties of the common Barberry, all of which are ornamental shrubs, easily propagated by cuttings or layers, and well adapted for a large lawn, especially the purple-leaved variety. They thrive best in rather a light, sandy soil. The fruit is acid and highly esteemed for preserving, and for this purpose the seedless variety, *B. vulgaris asperina*, is mostly preferred. This variety is a native of Europe. *B. Darwinii*, introduced from Chili in 1849, is one of the most beautiful of the genus. It forms a densely spreading bush with very numerous racemes of bright orange colored flowers.

Berche'mia. Named after *M. Berchem*, a French botanist. Nat. Ord. *Rhamnaceæ.*

B. volubilis is a common climbing shrub in the swamps of Virginia and the Carolinas, where it is popularly known as Supple-Jack, because of its lithe, tough stems. In foreign countries it is cultivated as an ornamental climber, but in dry soils it rarely grows more than eight or ten feet in height.

Berkhey'a. See *Stobœa.*

Bergamot A common name for *Mentha citrata.*
American Wild. *Monarda fistulosa.*
Medicinal. *Citrus Bergamia var. vulgaris.*

Bermuda Grass. See *Cynodon Dactylon.*

Bermuda Lily. See *Lilium Harrisii.*

Bertholle'tia. Brazil Nut. Named after *L. C. Berthollet*, a distinguished chemist. Nat. Ord. *Myrtaceæ.*

B. excelsa, the tree that bears the Brazil Nuts of commerce, is the only species of this genus, and is one of the most majestic trees in the Brazilian forests. It often attains a height of 150 feet, and has a diameter of from three to four feet at the base. It is found in the greatest abundance in the forests on the banks of the Amazon, and it is also common in Central America, and in several of the States of South America. The nuts are incased in a shell from four to six inches in diameter, which is extremely hard. Each shell contains about twenty nuts. So enormous is the weight of this fruit, that at the period when it falls the natives dare not enter the forests without covering their heads and shoulders with a strong buckler of wood. The time for collecting these nuts is in winter, when the Indians, in great numbers, ascend the rivers to obtain their harvest of nuts, upon which they depend for the year's subsistence. When the nuts are spread on the ground all the animals of the forest surround them and dispute their possession. The Indians say it is the feast of the animals as well as themselves, but they are angry with their rivalry. The gathering of the nuts is celebrated with rejoicings, like the "Harvest Home" of Old England. About once in five years another species or variety is seen in small quantities in a few of the fruit stores of New York. It is of a lighter color, much less angular, less oily, and very much finer in quality than the common Brazil Nut.

It is called the Paradise Nut, and is quite distinct. It is said to grow in the interior of the country, and is gathered by the Indians, and brought to the coast, which they visit at long intervals for the purpose of trade.

Bertolo'nia. In honor of *A. Bertoloni*, an Italian botanist. Nat. Ord. *Melastomaceæ.*

A genus of very pretty trailing or creeping plants, natives of the dense forests of Brazil. *B. maculata*, typical of the genus, is an exceedingly beautiful hot-house creeper. The leaves are spotted on the surface, and purple underneath. It requires a warm, moist atmosphere, and is readily increased by cuttings. Introduced in 1848.

Beschorne'ria. A genus of Agave-like Amaryllidaceous plants, allied to *Littæa*, and *Fourcroya. B. tubiflora*, and *B. yuccoides*, are highly ornamental species, very useful for lawn decoration in summer.

Besle'ria. Erect, dwarf, branching plants, bearing yellow, white, or purple flowers and scarlet or purple berries, introduced from tropical America and belonging to the Nat. Ord. *Gesneraceæ.*

They are very pretty stove shrubs, requiring a moist, warm atmosphere, and are readily increased by cuttings.

Besse'ra. Named after *Dr. Besser*, professor of botany at Brody. Nat. Ord. *Liliaceæ.*

A small genus of very beautiful Mexican bulbs, allied to the Squills. The flowers are scarlet, purple, or white, produced on slender scapes about a foot high. They may be grown in a frame, like half-hardy bulbs, but it is less trouble to treat them the same as the Tigridia. The bulbs must be kept warm and dry during the winter, if taken up Propagated by offsets. Introduced in 1846.

Be'ta. Beet. From *bett*, the Celtic word for red; in reference to the red color of the Beet. Nat. Ord. *Chenopodiaceæ.*

The several species included in this genus are natives of Europe, Northern Africa, and Western Asia. Four of the species are cultivated as esculents; the others are of no particular interest. *B. vulgaris*, the parent of our garden varieties, is a native of Egypt and along the whole sea-coast of the Mediterranean, and is now found growing wild in those localities. The Beet has been highly esteemed as a garden vegetable for more than 2,000 years, and is specially noticed by all the early writers on plants. The roots of the Beet have been much improved by cultivation, both as regards size and quality, and long ago they arrived at that state of perfection beyond which progress in the line of improvement must, of necessity, be slow. The several varieties of Mangel-wurzel and Sugar Beet, now grown so extensively in Europe, belong to the species *B. vulgaris var. macrorhiza.* The Chard Beet, or Swiss Chard, is *B. cycla*, a native of Portugal, first introduced into English gardens in 1670. It is extensively cultivated in the gardens of Europe, and forms one of the principal vegetables of the laboring class, the leaves only being used. They are stripped off and boiled as a substitute for Spinach. The rib of the leaf, which is strong and fleshy, is sometimes dressed as Asparagus. Sea Beet is *B. maritima*, a species of easy culture, used for greens only, and one of

the best plants under cultivation for that use. It is a native of the British coasts. The Chilian Beet, *B. Chiliensis*, a species of recent introduction, a native of Chili, as its name implies, is becoming popular for ornamental gardening, particularly for large ribbon borders, the two varieties, one with bright yellow, the other with crimson foliage, contrasting finely with other plants.

Betony. The common name of *Stachys Betonica.*

Be'tula. Birch. From its Celtic name, *betu.* Nat. Ord. *Betulaceæ.*

An extensive genus of deciduous trees, common in all the cold and inhospitable climates. Some of the species are the last trees found as we approach the snow in the most elevated districts. This genus is largely represented in our Northern States by *B. alba*, the common White Birch, which, from the tremulous habit of the foliage, is in some localities called Poplar Birch. This species is remarkable for its elegance. It seldom divides the main stem, which extends to the summit of the tree, giving out from all parts numerous slender branches, forming a very neat and beautiful spray of a dark chocolate color, contrasting finely with the whiteness of the trunk. When grown as a single specimen, this tree assumes a beautiful pyramidal form, making a moderate-sized tree of great beauty. *B. lenta* is the Black or Cherry Birch, so named from its resemblance to the American Black Cherries. The bark of the young twigs of this species has a sweet, aromatic taste. The wood is dark rose color, fine-grained, and much used in fine cabinet work. There are several other native species common in our Northern States, all interesting, mostly low-growing trees or large shrubs.

Beurre'. A general name applied to a class of dessert Pears, which have their flesh of what is called a buttery texture, as the name itself indicates.

Bi. In compounds signifies twice; as *Bicolor*, two-colored; *Bidentate*, with two teeth.

Bidens. The botanical name of the well-known Beggar's Ticks.

Bidwi'llia. Named after *Mr. Bidwill*, of Sydney, an ardent cultivator of bulbs. Nat. Ord. *Liliaceæ.*

A small genus of Australian and Peruvian bulbs, allied to Anthericum. The flowers are white, borne in racemes, and differing but little from the Asphodelus. Propagated by offsets.

Biennial. Lasting two years. A biennial plant requires two years to form its flowers and fruit; growing one year, and flowering, fruiting and dying the next. This, however, is not true of all climates. Many plants that are classed as biennials in England, when sown in the southern parts of the United States, or in a hot-bed in March, at the North, and planted out in summer, will flower, seed, and die just as many annuals do.

Bifrena'ria. From *bis*, twice, and *frœnum*, a strap; in reference to the double strap, or band, by means of which the pollen masses are connected with their gland. Nat. Ord. *Orchidaceæ.*

A genus of pretty orchids, closely allied to *Maxillaria*, differing very slightly from that genus, and succeeding well under the same treatment. *B. Harrisoniæ*, a very beautiful white species, with a purple lip, is known in cultivation under the following synonyms: *Colax*, *Dendrobium*, *Lycaste*, and *Maxillaria Harrisoniæ.*

Bigno'nia. Trumpet Creeper. Named after Abbé Bignon, librarian to Louis XIV. Nat. Ord. *Bignoniaceæ.*

An extensive genus of highly ornamental plants, and the type of an order equally beautiful. Most of the species are hot-house climbers, though a few assume a more arborescent character. *B. capreolata*, a native of Florida, is sufficiently hardy to withstand our severest weather when trained against a wall. The flowers of all are large and showy, produced in panicles, and are of various colors, red, blue, white, or yellow. They should be grown in rich loam, in a sunny position, or they will not flower well. Introduced in 1820. *B. radicans*, is a synonym of *Tecoma radicans*, which see.

B. Venusta, one of the most beautiful of the genus, is particularly suited for large greenhouses, for training on rafters, or festooning between pillars, etc. Producing its rich, orange-red flowers in clusters, in great profusion, during the winter months, makes it still more desirable. *B. magnifica*, with flowers varying from delicate mauve to rich purplish crimson, introduced from Columbia in 1879, is another very handsome and showy species, flowering in summer.

Bignonia'ceæ. A large order of trees, or twining shrubby plants, with usually opposite compound leaves, and showy, often trumpet-shaped flowers. The plants are found in the tropical regions of both hemispheres, but most largely in the eastern. In America they extend from Pennsylvania in the North to Chili in the South. Some yield dyes, and others supply timber. There are forty-six genera, and over 150 known species. *Bignonia*, *Catalpa*, *Tecoma* and *Eccremocarpus* are representative genera.

Big-Root. See *Megarrhiza.*

Billardie'ra. Apple Berry. Named after *Labillardière*, a French botanist. Nat. Ord. *Pittosporaceæ.*

A small genus of green-house evergreen climbers, natives of Australia and Tasmania. The species are not remarkable for beauty of plant or flower, but are highly esteemed for their sub-acid fruit, which is pleasant and wholesome. The fruit is a small berry, either blue or amber-colored. Propagated by cuttings.

Billbe'rgia. Named after Billberg, a Swedish botanist. Nat. Ord. *Bromeliaceæ.*

These are handsome plants when well grown. The colors of the flowers are at once rich, vivid, and delicate, and are usually contrasted in the highest manner by the equally bright tints of the colored bracts. They should be grown in pots of rich loam, in a warm greenhouse, or plunged into an active hot-bed until the growth is completed, when a cooler and drier place, as on a shelf of the hot-house, will induce them to flower freely. Propagated by suckers. Introduced from Brazil in 1825.

Billberry. See *Vaccinium.*

Bilstead. A common name of the *Liquidambar.*

Binding Plants. A name that may be given to such plants, the roots of which are useful for binding the soil on the banks of reservoirs, aqueducts, etc., as well as the loose sand-banks on exposed shores or wastes. Various species of Willows, Raspberries, Blackberries, Vacciniums, and with strong spreading roots, are useful for the former. Alsike Clover is also well suited for this purpose, its long, fibrous roots holding the soil well together. The Bermuda Grass, *Cynodon Dactylon*, is also exceedingly valuable anywhere south of Virginia, and with *Ammophila* or *Calamagrostis arenaria*, is invaluable for binding loose sand on exposed sea-shores and water-courses. (See *Ammophila*). *Ampelopsis Veitchii*, the Japan or Boston Ivy, has also been found useful for planting on railroad cuttings and embankments to prevent loose rocks from falling on the tracks.

Bindweed. A popular name for *Convolvulus arvensis.*

Birch. See *Betula.*

Bird Cherry. See *Cerasus Padus.*

Bird of Paradise. A name applied to the flowers of the *Strelitzia Reginæ*, from their supposed resemblance.

Bird Pepper. *Capsicum baccatum.*

Bird's Bill. *Trigonella ornithorrhynchus.*

Bird's Foot, or Bird's Foot Trefoil. *Lotus corniculatus.*

Bird's-nest. *Daucus Carota,* or Wild Carrot.

Bird's-nest Fern. *Asplenium Nidus.*

Birth-root. *Trillium erectum.*

Birth-wort. The genus *Aristolochia.*

Bishop's Cap, or Mitre-wort. The genus *Mitella.*

Bishop's-wort. *Stachys Betonica.*

Bishop-weed. See *Ægopodium podograria.*

Bismarkia. In honor of the German statesman. An imperfectly-known genus of *Palmaceæ*, of which *B. nobilis* is the only species. It is a very ornamental plant, with the appearance and habit of a *Pritchardia.* Introduced from Madagascar in 1886.

Bitter Almond. *Amygdalus communis.*

Bitter Apple. *Cucumis Colocynthis.*

Bitter Cress. The genus *Cardamine.*

Bitter Nut, or Swamp Hickory. *Carya amara.*

Bitter Root. *Lewisia rediviva.*

Bitter Sweet. A popular name for *Celastrus scandens;* also applied to *Solanum Dulcamara.*

Bitter Vetch. The genus *Orobus.*

Bitter Weed. *Ambrosia artemisiæfolia.*

Bi'xa. Arnatto. Its native South American name. Nat. Ord. *Flacourtiaceæ.*

South American trees, or shrubs, *B. Orellana*, commonly known as the Arnatto tree, is a native of tropical America, the West Indies, Sumatra, and Java, and is much valued because of the coloring matter which is procured from the pulp that surrounds the seeds, and which is an important article of commerce. It seldom attains to more than twelve feet in height. The leaves are of a deeper green on one side than on the other, and are divided by fibres of a reddish-brown color; they are four inches long, broad at the base, and tend to a sharp point. The stem has likewise fibres, which, in Jamacia, are converted into serviceable ropes. The tree produces oblong, bristled pods, somewhat resembling those of a chestnut. These, at first, are of a beautiful rose-color; but, as they ripen, change to a dark-brown, and bursting open, display a splendid crimson farina, or pulp, in which are contained thirty or forty seeds, in shape similar to raisin stones. This pulp is separated by throwing the freshly-gathered seeds into a tub of water, and stirring them until the red matter is detached. when it is strained off and evaporated to the consistency of putty. In this state it is made up into rolls, and is ready for market. This drug is used in coloring cheese, butter, and for inferior chocolates. It is also used by silk-dyers; and by varnish-makers, for imparting a rich orange tint to some kinds of varnish.

Bixi'neæ, or **Bixa'ceæ.** A name sometimes given to the order *Flacourtiaceæ*, which see.

Black Alder, or **Winter-berry.** *Prinos Verticillata.*

Black-berry. See *Rubus.*

Black-berry Lily. See *Pardanthus.*

Black Bind-weed. *Polygonum Convolvulus.*

Black Bryony. See *Tamus.*

Black Gum, or **Sour Gum.** *Nyssa multiflora.*

Black Haw. *Viburnum prunifolium.*

Black Horehound. *Balotta nigra.*

Black Jack, or **Barren Oak.** *Quercus nigra.*

Black Moss, or **Florida Moss.** *Tillandsia usneoides.*

Black Mustard. See *Sinapis nigra.*

Black Oat Grass. *Stipa avenacea.*

Black Oyster Plant. See *Scorzonera Hispanica.*

Black Pepper. See *Piper nigrum.*

Black Snake Root. *Sanicula Marilandica.*

Black Thorn. *Prunus spinosa*, also *Cratægus tomentosa.*

Black Varnish Tree. *Melanorrhœa usitatissima.*

Bladder-wort. The genus *Utricularia.*

Bladder Catch-fly. *Silene inflata.*

Bladder Nut. *Staphylea trifoliata*, and *S. pinnata.*

Bladder Senna. *Colutea herbacea*, and *C. arborescens.*

Blanching. This process is effected for the purpose of obtaining crispness, and for converting what would, under ordinary circumstances, be a dangerous plant—in the case of Celery especially so—into a highly popular delicacy. Blanching can only be accomplished by entirely excluding the light from the plants, thus depriving the coloring matters of their power to decompose water and carbonic acid gas.

Blandfo'rdia. Named in honor of George, Marquis of Blandford. Nat. Ord. *Liliaceæ.*

Beautiful green-house bulbs from New South Wales. They should be grown in large pots filled with leaf mould, loam and sand, placed in the green-house, and, if properly attended to with water, will flower freely. The flowers are crimson or orange. Introduced in 1812. Propagated by seeds and offsets.

BLA

Blazing Star. A common name of *Liatris squarrosa*, and also given to *Chamælirium luteum*.

Ble'chnum. From *blechnon*, a Greek name for a Fern. Nat. Ord. *Polypodiaceæ*.

A considerable genus of Ferns of the same group as *Lomaria*, the distinction between the two consisting in the fructification of *Lomaria* being marginal, and that of *Blechnum* being within the margin. The genus contains a considerable number of species, which are abundant in tropical countries; South America and the West Indian Islands having contributed the greatest number.

Bleeding Heart. The popular name of *Dielytra* (*Diclytra, Dicentra*) *spectabilis*.

Blephi'lia. A genus of uninteresting herbs, nearly allied to *Monarda*, Horse-mint, common in the southern and western States.

Blessed Thistle. *Cnicus benedictus*. A genus of Thistles, natives of the Levant and Persia. Naturalized and common on the roadsides in the southern States; now called by some authors, *Carbenia benedicta*.

Ble'tia. Named after a Spanish botanist of the name of Blet. Nat. Ord. *Orchidaceæ*.

Pretty, tuberous-rooted, terrestrial Orchids, which produce large spikes of shaded purple flowers and require to be grown in pots of fibrous loam and leaf mould. A somewhat high temperature, say 70° or 75°, with plenty of moisture while they are growing, and a considerable reduction of both as soon as it is completed, is necessary to cultivate them in perfection. They are increased by means of offsets. Introduced from Mexico in 1822. *B. Tankervilliæ*, is now included under *Phaius*, which see.

Bli'ghia. Named in honor of Capt. Bligh, who first carried the bread-fruit to the West Indies. Nat. Ord. *Sapindaceæ*.

This is called the Akee Tree, and is a plant much esteemed in Africa and the West Indies on account of its fruit, which is as large as a goose's egg, and of a reddish or yellow color. This fruit contains several large seeds, the coating of which is eaten; it is said to possess an agreeable sub-acid taste, very grateful to the palate. Syn. *Cupania*.

Blight. As used by cultivators this term is of vague significance. It is applied to those diseases of grain, etc., which usually depend upon the presence of parasitic *Fungi*. The Pear Blight so destructive to pear trees for many years past, is now generally believed to be owing to the presence of a Fungus, though not a few still believe that it is to be attributed to a diseased condition of the sap. There have been several theories put forth to account for this destructive disease, and the subject still remains more or less a mystery. Insects have also been charged with producing the disease; but whatever the cause, all know the results to be only too fatal, and, thus far, without remedy. Blight is not confined to the field and the orchard, but also finds its way to plants in the garden. If *Fungi* are not the cause of the disease, they may be said to be always present as a result.

Blind Shoots. A term given to such shoots as do not show flower buds.

Blood Flower. The common name for *Hæmanthus*.

West Indian. *Asclepias curassavica*.

BŒ

Blood Root. See *Sanguinaria Canadense*.

Blood Wood. Australian. *Eucalyptus corymbosa*.

E. Indian. *Lagerstræmia Reginæ*.

Blue Bells. *Campanula rotundifolia*, and *Scilla nutans*.

Blue-berry. *Vaccinium Pennsylvanicum*, etc.

Blue-bottle. *Centaurea cyanus*.

Blue Cohosh. A popular name of *Caulophyllum thalictroides*, also called the *Pappoose root*.

Blue Curls. A popular name for the genus *Trichostema*.

Blue Daisy. *Agathea cœlestis* and *Aster Tripolium*.

Blue-eyed Grass. *Sisyrinchium Bermudianum*.

Blue Flag. *Iris versicolor*.

Blue Grass. Kentucky. See *Poa pratensis*.

Blue Gum. See *Eucalyptus globulus*.

Blue Palmetto. See *Rhapidophyllum*.

Blue Pea. See *Clitoria ternatea*.

Blue Tangle. Dangleberry, Huckleberry. *Gaylussacia frondosa*.

Bluets. Common name for *Houstonia cœrulea*; also the French name for *Centaurea Cyanus*.

Blue Weed, or Viper's Bugloss. *Echium vulgare*.

Blumenba'chia. In honor of *Dr. Blumenbach*, of Göttingen, a distinguished comparative anatomist. Nat. Ord. *Loasaceæ*.

Elegant branched climbing or trailing, annual, biennial, or perennial herbs, with large white or yellow flowers, and generally covered with stinging hairs, which are very objectionable.

Bocco'nia. Named after *P. Bocconi, M.D.*, a Sicilian. Nat. Ord. *Papaveraceæ*.

B. cordata, the only species adapted for the border, is a handsome, hardy herbaceous plant, a small clump or single specimen of which would take high rank among ornamental-leaved plants, but unfortunately, it refuses to be kept within bounds, and will, when once established, not only take possession of the border, but the lawn as well; and for this reason, notwithstanding its great beauty, it should not be planted on the lawn. Syns. *B. japonica* and *Macleaya yedoënsis*.

Bœhme'ria. Ramee or Ramie. In memory of *George Rudolph Bœhmer*, a German botanist. Nat. Ord. *Urticaceæ*.

A genus of herbaceous plants or shrubs, allied to the true Nettles, but differing from them in not having stinging hairs. The most interesting species is *B. nivea*, the Chinese Grass-cloth Plant. It is a small, shrubby plant, about three or four feet high, throwing up numerous straight shoots, which are about as thick as the little finger, and covered with soft short hairs. Its leaves grow on long hairy footstalks, and are broadly heart-shaped, about six inches long and four broad. They are of a deep green color on the upper side, but covered on the under side with a dense coating of white down, which gives them an appearance like that of frosted silver. The beautiful fabric known as Grass-cloth, which rivals the finest cambric in softness of texture, is manufactured from the fiber obtained from the inner bark of this plant. The Chinese bestow an immense amount of care

and labor upon its cultivation and the preparation of its fiber. They obtain three crops of its stems annually, the second being considered the best. To obtain the fiber, the bark is stripped off in two long pieces and carefully scraped with a knife, so as to get rid of all useless matter, after which it is softened and separated into fine filaments either by steeping it in hot water or holding it over steam. This plant has been introduced into the Southern States, where it grows freely; but the difficulty in separating the fiber so as to make its production profitable, has yet to be overcome.

Bog Asphodel. See *Narthecium.*

Bog Moss. See *Sphagnum.*

Bog Myrtle. *Myrica Gale.*

Bog Rush. *Juncus.* Common in all marshy grounds or swamps.

Boilers, Greenhouse. See Heating.

Bokhara Clover. One of the popular names of *Melilotus Alba;* an excellent Bee-food plant all season.

Bolbophy'llum. From *bolbos,* a bulb, and *phyllon,* a leaf; referring to the leaves issuing from the apex of the pseudo-bulbs. Nat. Ord. *Orchidaceæ.*

A genus of dwarf epiphytal Orchids from Africa and the East Indies, more curious than beautiful. Flowers large, single or in pairs; color, yellow or white, with purple spots or stripes. Not often seen in collections. Syn. *Bulbophyllum.*

Bo'llea. Derivation of name not given. Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, consisting of only two species, natives of New Grenada. They are showy plants, with radical foliage, from the base of which the flowers are produced on single scapes. The flowers are shaded pink, with a bright yellow lip. They require to be grown in pots of Moss, in rather a warm house, and are increased by division. Placed by some authors under *Zygopetalum.*

Bolto'nia. A genus of three species belonging to the *Compositæ* family, and peculiar to North America, where they extend from Canada to the Southern States. They produce an abundance of flower heads with whitish or purplish rays, very much like the Asters to which genus they might at first glance be referred. They are well worth a place in the mixed border.

Boma'rea. Derivation of name not given. Nat. Ord. *Amaryllidaceæ.*

A somewhat extensive genus of tuberous-rooted plants, formerly included in the genus *Alstrœmeria,* and differing only in the fruit. The species abound in the Peruvian Andes, and are common in other high elevations in South America. *B. edulis* is a West Indian species, the roots of which are eaten like those of the Jerusalem Artichoke. For culture and propagation see *Alstrœmeria.*

Bo'mbax. Silk Cotton Tree. From *bombax,* cotton; in reference to the woolly hairs which envelop the seed, like those of the Cotton-plant. Nat. Ord. *Sterculiaceæ.*

A genus of tall growing trees, that abound in South America and the East and West Indies. *B. Ceiba,* a typical species, has a spiny trunk, and is one of the tallest trees of

both Indies, but the wood is very light and not much valued except for canoes. Their trunks are so large, that when hollowed out they make very large ones, so that in the West Indies they frequently carry from fifteen to twenty hogsheads of sugar, of from six to twelve hundred pounds each. The cotton which is enclosed in the seed-vessels is seldom used, except by the poorer inhabitant, to stuff pillows or chairs; and it is generally thought unwholesome to lie upon.

Bonapa'rtea. Named in honor of *Napoleon Bonaparte.* Nat. Ord. *Bromeliaceæ.*

A genus remarkable for the gracefulness of their long, rush-like leaves. They are well adapted for growing in vases out of doors in summer. They require a warm house in winter. Propagated by seeds. Introduced from Mexico in 1828.

B. juncea has been placed under the genus *Agave,* as *A. geminiflora,* by some botanists.

Bone Dust. One of the safest and best of concentrated fertilizers. When used broadcast, it should be sown on the soil after digging or plowing, just thick enough to cover it with a thin layer, about as thickly as sawdust or sand is used on a floor. If used on dug ground, it should be well chopped and mixed through the soil, so as to mix it to a depth of five or six inches. If on ground that has been plowed, a thorough harrowing will mix it to the required depth. This thickness will require at the rate of from fifteen hundred to twenty-five hundred pounds per acre. If to be used in drills or "hills," or only where seed are to be sown or plants planted, and not over the whole ground, it will take only about from one hundred and fifty to three hundred pounds per acre, which should be mixed in the soil in the same manner.

Boneset. See *Eupatorium.*

Bonne'tia. Named after *C. Bonnet,* a distinguished naturalist. Nat. Ord. *Ternstromiaceæ.*

A small genus of Brazilian and Peruvian shrubs or low growing trees, the flowers of which are mostly white, nearly as large as those of a *Camellia* and are produced singly and in panicles. The leaves of *B. paniculata,* have an agreeable aromatic smell when bruised.

Bonus Henricus, Good King Henry. *Chenopodium Bonus Henricus.*

Boraginaceae. A large order of herbs or shrubs, having spirally coiled inflorescence, round stems and alternate rough leaves. The fruit consists of distinct seeds without albumen. The plants are principally natives of northern temperate regions. They are found in southern Europe, the Levant, and Central Asia. In high northern latitudes they are less frequent, and nearly disappear within the tropics. The plants abound in mucilaginous and demulcent qualities. Some yield dyes, as Alkanet (*Anchusa tinctoria*). The common Borage (*Borago officinalis*), when steeped in water, imparts coolness to it, and is used in the beverage called cold tankard. The leaves of *Mertensia maritima* have the taste of Oysters, whence the common name of Oyster Plant. The species of *Myosotis* are universally prized under the name of Forget-me-not. There are fifty-eight known genera of this order, and over

BOCCONIA.

BRUSSELS SPROUTS.

BIGNONIA.

BRIZA MAXIMA.

BONAPARTEA.

BOUVARDIAS.

BORASSUS (PALMYRA PALM.)

BORECOLE (BROWN CURLED KALE).

BORAGO OFFICINALIS.

BROWALLIA.

BORECOLE (DWARF GREEN CURLED SCOTCH KALE).

BRUGMANSIA SUAVEOLENS.

BRACHYCOME.

six hundred species. *Myosotis*, *Borago*, *Cynoglossum*, *Lithospermum*, *Cerinthe*, *Symphytum*, and *Anchusa*, are examples of this order.

Bora'go. Borage. Altered from *cor*, heart, and *ago*, to affect; referring to the cordial qualities of the herbs. Nat. Ord. *Boraginaceæ*.

Hardy annual and perennial herbs, common throughout Europe. The leaves of *B. officinalis* are sometimes used in salads or boiled as spinach. The spikes of flowers are aromatic, and sometimes used in cooling drinks. All the species are easily cultivated and are admirably adapted for naturalizing in dry, stony places. They also afford excellent food for bees during the whole season.

Bora'ssus. Palmyra Palm. Linnæus applied this name to the spathe of the date-palm. Nat. Ord. *Palmaceæ*.

A genus of magnificent Palms, consisting of two species only, which have a wide geographical distribution, ranging from the north-eastern parts of Arabia, through the Indian Ocean, and the southern parts of Hindostan, to the Bay of Bengal. The number of Palmyras in the Jaffua peninsula and adjacent islands alone has been estimated at nearly six million and a half, being at the rate of thirty-two trees for each of the population. The utility of the plant is commensurate with its extended dispersion, a providential arrangement in the economy of nature, of which the food-plants afford many instructive examples. This plant is believed to yield one-fourth part of the food of about 250,000 inhabitants of the northern provinces of Ceylon, while it forms the chief support of six or seven millions of the people of India and other parts of Asia; thus, remarks Seeman in his *History of Palms*, "proving itself one of the most important plants on earth, rivaling the date-tree, and ranking only below the cocoa-nut palm in usefulness." The fronds give shelter to scores of animals by night and day, besides affording a refreshing supply of moisture, the grooves of the petioles and the construction of the leaves being peculiarly suitable for conveying and retaining rain. The same causes attract orchids and other epiphytes, and ferns, which find their conditions of growth on the stem; and various species of the fig, including the true banyan-tree, are found in living embrace with the Palmyra. In the Botanic Garden at Calcutta a banyan sprang from the crown of a palm where the seed had been deposited by a bird, and, sending its roots down to the earth through the palm-stem, destroyed and replaced it. But in the region of the Palmyra, the banyan often becomes the foster-mother of that beautiful and serviceable plant. One of the largest banyans of Ceylon, the resort of pleasure parties from Jaffua, has two or three Palmyras growing in it, the united trees covering one and one-twelfth acres of ground. The cocoa palm is celebrated for its 365 uses; a poem in the Tamil language extols the Palmyra for 800 purposes to which it can be applied, without exhausting the catalogue. The roots yield a medicine; the young plants are used for food, prepared in various ways; the wood serves innumerable purposes, in building and furnishing houses, and for the manufacture of umbrella handles, walking-canes, fancy boxes, and for hundreds of other small articles; fields are fenced with the mid-rib of its leaves, the decayed leaves furnish good manure for the soil; mats are made of the leaves, and are used instead of carpets on the floors, for ceilings, for drying coffee upon; baskets, bags, hats, caps, fans, in short, everything manufactured of wood or straw, is also produced from some part or parts of this palm. The plants reach maturity about the twelfth or fifteenth year. Then they yield a toddy, "a beverage almost as famous for its use as for its abuse." The fruit of this palm is sometimes eaten raw, but more generally roasted, and is in great repute by the natives, who assemble together under the shade of a tree, light a fire, squat around it, sucking the pulp out of the fibres of the roasted fruits, tearing them asunder with nails and teeth in the most approved style, and presenting a truly oriental spectacle of gustative enjoyment. A full grown Palmyra is from sixty to seventy feet high: the trunk at the bottom is about five and a half feet, and at the top, two and a half feet in circumference.

Borders. Flower. A flower-border is generally a continuous bed of greater length than width, skirting a shrubbery or fence, and containing plants of a mixed character. It should be thoroughly drained, well manured, and raised slightly above the surrounding level. No rules can be laid down as to the arrangement of the plants, which of course depends on individual taste; all formal lines, however, should be avoided, the taller plants either singly or in groups forming the back-ground, with the dwarfer subjects in front. As the object should be to obtain a continuous succession of bloom, the best results will be obtained when the border is made up mainly, of herbaceous perennials as permanent occupants, with a liberal admixture of hardy spring-blooming bulbs, such as Narcissus, Snow-drops, Tulips, Scillas, etc., assisted by quantities of summer blooming plants, Lantanas, Geraniums, Dahlias, Heliotrope, etc. Many sorts of hardy annuals are useful to fill up vacant places, and assist largely to keep up a succession of bloom till frost comes. See Herbaceous Plants.

Borbo'nia. A genus of ornamental green-house evergreen shrubs belonging to the pea-flowered section of *Leguminosæ*, and numbering some thirteen species, all natives of the Cape of Good Hope. The flowers are generally yellow, borne in terminal heads. They require cool green-house treatment and are propagated by cuttings.

Borecole. Kale. *Brassica oleracea fimbriata.* The chief characteristic of the Borecoles or Kales consists in their not producing heads like the Cabbage, or eatable flowers like the Cauliflower or Broccoli, and by their beautifully cut and curled leaves, which are of a green or purple color, or variegated with red, green, or yellow. Several of the sub-varieties are known in our markets, and extensively grown by market gardeners, the most popular being the dwarf green curled Scotch, the brown or purple German curled; and for early spring use, the Siberian Kale or "Sprouts." The Borecole is a native of the British coasts and the north of Europe. The garden varieties are not many removes from the species.

BOR

Boro'nia. Named after *Boroni*, an Italian attendant of Dr. Sibthorp. Nat. Ord. *Rutaceæ.*

A genus of elegant green-house shrubs from New Holland. The flowers are pink or whitish. They are very elegant and useful shrubs, requiring the same treatment as ordinary hard-wooded green-house plants, being much aided by a little extra heat in spring when starting into growth. Propagated by cuttings.

Bossiæ'a. Named after *M. Bossier Lamartiniére*, a French botanist, who accompanied the unfortunate La Peyrouse round the world. Elegant Australian green-house shrubs of the Nat. Ord. *Leguminosæ.*

Flowers yellow or yellow and purple, *B. linophylla, B. rotundifolia, B. cinerea* (Syn. *B. tenuicaulis*), and others of the genus are highly ornamental, and no green-house collection of any pretensions is to be found without some of them. Propagation by cuttings or seeds.

Boswe'llia. Olibanum Tree. Ornamental and economic evergreen trees of the Nat. Ord. *Burseraceæ.*

These trees are remarkable as furnishing a gum-resin. *B. glabra* is used in India in place of pitch; *B. thurifera*, known also as *B. serrata*, a very common tree in Coromandel, furnishes the resin known as Indian Olibanum, which is supposed to have been the Frankincense of the Ancients, and is still employed for its grateful perfumes as incense in the Roman Catholic churches.

Botry'chium. Moonwort. From *botrys*, a bunch; in reference to the bunch-like form of the fructification forming a separate branch on frond. Nat. Ord. *Polypodiaceæ.*

A genus of hardy ferns, composed of about a dozen species, found in nearly all countries except Africa. *B. lunaria*, Moonwort, is found rarely in the North and West. *B. Virginica* is a very beautiful and ornamental native species, easily transplanted to the hardy fernery. Many of the other species are common in rich woods.

Bottle-brush. *Equisetum sylvaticum, E. arvense*, and *Hippuris vulgaris.*

Bottle-brush Flowers. The flowers of *Beaufortia splendens, Melaleuca hypericifolia, Metrosideros floribunda*, and some species of *Callistemon.*

Bottle-gourd. *Lagenaria vulgaris.*

Bottle-grass. One of the common names of *Setaria.*

Bottle-tree, Australian. *Brachychiton* (*Delabechea*) *rupestris.*

Bougainvi'llea. Named after the French navigator *De Bougainville.* Nat. Ord. *Nyctaginaceæ.*

Gorgeous warm green-house or conservatory plants, comprising some of the most showy climbers in cultivation. Their beauty lies in the showy rose-colored bracts which envelop the small greenish flowers. Those of *B. spectabilis*, are singularly handsome. *B. glabra* may be grown in pots but the other species require more room and are best planted out in the green-house border. Natives of South America; easily increased by cuttings.

Bouncing Bet. A popular name of *Saponaria officinalis.*

BOU

Bouquets, Baskets of Flowers, etc. Bouquet making is (or at least ought to be) the art of arranging cut flowers.

Many people decry the artificial arrangement of flowers, but how shall we otherwise use them to advantage? The moment we begin to tie them together we leave nature, and ought to do so only to study art. In their simplest arrangement, form and color must be studied to produce the best effect, and whoever best accomplishes this, will surely succeed in displaying his flowers to the best advantage.

Probably the simplest, easiest, and commonly the most desirable, method of using cut flowers is arranging them in vases. The more loosely and unconfused, the better. Crowding is particularly to be avoided, and to accomplish this readily a good base of greens is required, to keep the flowers apart. This filling up is a very important part in all bouquet making, and the neglect of it is the greatest stumbling-block of the uninitiated. Spiked and drooping flowers, with branches and sprays of delicate green, are indispensable to the grace and beauty of a vase bouquet. To preserve the individuality of flowers, which is of the greatest importance, the placing of those of similar size and form together ought to be avoided. Thus Heliotrope, Stevia, Eupatorium, or Alyssum, when combined, lose their distinctive beauty; but, if placed in juxtaposition to larger flowers, and those of other forms, their beauty is heightened by contrast. It may be stated as a rule, that small flowers should never be massed together. Large flowers with green leaves or branches may be used to advantage alone, but a judicious contrast of forms is most effective.

Some years ago, Bouquets were invariably arranged in the formal style, the colors being used in consecutive rings, or alternating with each other in geometrical forms. Taste, or fashion, if you will, has changed for the better, and closely-made, mushroom-like bouquets, are now the exception rather than the rule. The flowers are now arranged quite loosely, plenty of Maiden-hair Fern and Smilax being used so as to show off each flower distinctly. Indeed the modern Bouquet, especially if composed of roses, looks as if the flowers had been picked up and tied together without any thought of, or attempt at arrangement. In these bunches, one color is usually chosen, with a bunch of Violets, Heliotrope, Mignonette or other sweet smelling flowers, tied on one side as a contrast, and to add fragrance to the arrangement. For extra occasions, Bouquets are made of Orchid blossoms, generally two or more sorts that harmonize in color, being used, aided by a liberal admixture of Fern fronds or sprays of the beautiful filmy South African Asparagus. Bouquets of Lily of the Valley, forced White Lilacs, Violets, etc., are often used, either alone or in combination with one or two other flowers, the colors generally massed, however, rather than mixed, fashion now leaning towards simplicity and naturalness of arrangement. Baskets and Plateaus of flowers are also arranged on the same principles, groups of different flowers or of the same flower in different shades being used in preference to an admixture of color.

Bourbon Palm. See *Livistona.*

Boussinga'ultia. Madeira Vine. Named in honor of *J. B. Boussingault*, a celebrated naturalist and traveler. Nat. Ord. *Chenopodiaceæ.*

The only species, *B. baselloides*, is an elegant climbing tuberous-rooted plant from the Andes, a rapid grower and profuse bloomer. The flowers are nearly white and deliciously fragrant. It grows readily in any garden soil, and is readily increased by division or by seed. Introduced in 1836.

Bouva'rdia. Named after *Dr. Bouvard*, curator of the Botanic Garden, Paris. Nat. Ord. *Cinchonaceæ.*

Green-house evergreen shrubs, introduced from Mexico. They are amongst the most important plants cultivated for winter flowers, owing to the yearly increasing variety of color, and their excellent adaptation for that purpose. They are also effective as bedding plants for the flower garden, beginning to bloom in August and continuing until frost. Many very superior varieties have originated in this country, notably the pure white free-growing and free-flowering *B. Davisoni*, and the rich crimson *B. elegans*, both sports from *B. Hogarth*, a brilliant scarlet variety; the double white *B. Alfred Neuner*, and double red *B. Pres. Garfield*, with many other excellent free-flowering sorts. Propagated by root cuttings, or by cuttings of young wood in sand.

Bowe'nia. In honor of *W. G. Bowen*, a governor of Queensland.

A remarkable genus of *Cycadaceæ*, consisting of but one species, which was discovered in Australia in 1819. The species is described in the *Botanical Magazine* as follows: "The most prominent character of *Bowenia* is the compound leaf, its general characters (all but shape), texture and venation; the leaflets do not differ from those of *Macrozamia*, and are so very similar to those of the West Indian *Zamia* that it is difficult to distinguish them generically, except that in *Bowenia* the leaflet is decurrent by the petiole, and not articulated with rachis." The fern-like aspect presented by this plant is very remarkable and interesting, giving it a prominent position among green-house plants. Propagated by seeds or from suckers.

Box. The common name of *Buxus sempervirens*, a plant at one time much used for edgings in ornamental gardening. It is a native of Europe and Asia, and is readily increased by cuttings.

Boxberry. A name sometimes applied to the Wintergreen, *Gaultheria procumbens.*

Box Elder. See *Negundo.*

Boxes for Seeds. Seeds, particularly flower seeds, when sown under glass, do much better when sown in shallow boxes than in flower-pots. A convenient size is the ordinary soap box, cut into four, making a depth of from one and a half to two inches. Or, what is even more convenient, the shallow boxes in which tin is imported. These are filled nearly full with finely-sifted soil, which is made as level and smooth as possible. On this smooth surface the seeds are sown, and then pressed down level into the soil, and over the seeds is sifted dry moss, leaf mould, or cocoanut fiber (which has been run through a sieve as fine as mosquito wire), in quantity enough to fairly cover the seeds. This, from its spongy nature, retains moisture, while its lightness offers but little resistance to the tender seed germ. The same style of box is used for "pricking off." See "propagation."

Box Thorn. See *Lycium barbarum.*

Box-wood. West Indian. *Vitex umbrosa.*

Brabei'um. African Almond. From *brabeion*, a sceptre, in reference to the racemosed flowers. Nat. Ord. *Proteaceæ.*

An ornamental green-house evergreen, with white, sweet-scented flowers, disposed in elegant, axillary, spiked racemes. Its seeds are called Wild Chestnuts and Wild Almonds, and are both roasted and eaten, and used as a substitute for coffee. Introduced from the Cape of Good Hope in 1751.

Brachychi'ton. From *brachys*, short, and *chiton*, a tunic; plant covered with imbricated hairs and scales. Nat. Ord. *Sterculiaceæ.*

A genus of tropical and sub-tropical trees from Australia. *B. acerifolium* is called the Flame Tree about Illawarra, on account of its bright scarlet flowers, which make the tree a conspicuous object at a distance. *B. Bidwillii*, a native of the Wide Bay district, has bright crimson flowers, produced in axillary bunches. *B. Delabechia*, Syn. *Delabechia rupestris*, is a very interesting species, popularly known as the Bottle Tree of Australia.

Brachyco'me. From *brachys*, short, and *kome*, hair. Nat. Ord. *Compositæ.*

This beautiful annual is found on the banks of the Swan River, in Australia, and has there the very appropriate name of Swan River Daisy, as the flower closely resembles the Daisy. The plant grows from six to ten inches high, and has a closely compact branching habit, producing an abundance of flowers. It is well adapted for small beds or rockeries. Propagated by seeds. Introduced in 1840.

Brachyse'ma. From *brachys*, short, and *sema*, standard; the flowers having the standard petal short. Nat. Ord. *Leguminosæ.*

A genus of handsome green-house shrubs, mostly climbing, from Australia. *B. aphyllum* is, as its name would imply, a leafless plant, the branches being singularly compressed and winged, so as to perform the functions of leaves. Small brown scales are found scattered over these branches, and from these the flowers grow. They are single, large, and of a bright blood-red color. *B. lanceolatum* is a very handsome species, and well adapted for the green-house, flowering, as it does, in winter or the early spring months. Its leaves are ovate or lanceolate in form, with a glossy upper surface, and covered with a silvery pubesence underneath. The flowers are in axillary clusters, large and rich scarlet.

Bracteæ or Bracts. The leaves placed immediately below a calyx, if they are at all altered from their usual form.

Bracted Bindweed. See *Calystegia.*

Bra'hea. Named after *Tycho Brache*, the celebrated astronomer. Nat. Ord. *Palmaceæ.*

A genus of medium-sized Palms, with fan-like leaves and spiny leaf-stalks. *B. filamentosa*, a native of Lower California, is largely cultivated in our green-houses for decorative purposes. It is of graceful habit and rapid growth, succeeding well with but little care in

the green-house. This species is also known as *Pritchardia filifera*. It is now said that *B. filamentosa* is neither a *Brahea* nor a *Pritchardia*, and it is therefore proposed to call it *Washingtonia*, which see. Young plants are obtained from seed. *B. edulis* is now placed under *Erythea*, which see.

Brahmin's Beads. An Indian name for the corrugated seeds of *Elæocarpus*, which are used by the Brahmins, for necklaces, etc.

Brai'nea. After *J. C. Braine*, of Hong Kong. Nat. Ord. *Polypodiaceæ*.

B. insignis, the only known species, is a very handsome dwarf Tree Fern, a native of Hong Kong. The stem is from three to four feet high; the fronds about three feet long, finely pinnate, giving the plant an elegant outline. Sir W. J. Hooker says: "We have here a very remarkable, and, if I may say so, a new form among the Ferns."

Brake or Bracken. The popular name of *Pteris aquilina*, one of our common strong-growing Ferns.

Bramble. See *Rubus*.

Brassavo'la. Named after *A. M. Brassavola*, a Venetian botanist. Nat. Ord. *Orchidaceæ*.

A small genus of epiphytal Orchids, belonging exclusively to tropical America. But few of the species have merits that entitle them to a place in general collections. The few are of easy culture, and produce flowers nearly six inches across, white, or creamy white, spotted with chocolate. The plants are all dwarf, with very short flower stems. They are usually grown on a block, in a rather high temperature, and are increased by division. Introduced in 1840.

Bra'ssia. Named after *Mr. Brass*, a traveler and botanical collector. Nat. Ord. *Orchidaceæ*.

This genus of Orchids is nearly allied to *Oncidium*, but not so popular because of their dull-colored flowers. Some of the species are highly valued by growers, as they produce, with but little care and trouble, an abundance of flowers from June to August. Flowers mostly yellow, or greenish white spotted with brown. Introduced in 1844.

Bra'ssica. Cabbage. From *bresic*, the Celtic name for Cabbage. Nat. Ord. *Cruciferæ*.

From this genus which is found throughout Europe, more particularly in Great Britain, there has been produced a greater variety of culinary vegetables than from any other. It comprehends *Cabbage*, *Cauliflower*, *Turnip*, *Borecole*, *Broccoli*, *Brussels Sprouts* and *Kohl Rabi*, each of which will be noticed under its popular name.

Brassica'ceæ. A sub-order or tribe of *Cruciferæ*.

Bravo'a. Named after *Bravo*, a Mexican botanist. Nat. Ord. *Amaryllidaceæ*.

This genus consists of but a single species, *B. geminiflora*, a graceful little tuberous-rooted plant, native of Mexico. It has a small tuft of narrow leaves, from which arises a flower spike about a foot high, with a terminal cluster of small, crimson, Amaryllis-like flowers, in July. It will flower in the open border, but requires the protection of the green-house during winter. Propagated by division.

Brazilian Tea. *Ilex Paraguariensis* and *Stachytarpheta Jamaicensis*.

Brazil Nut. See *Bertholletia*.

Brazil Wood. See *Cæsalpinia*.

Bread Fruit. See *Artocarpus*.

Bread Nut. See *Brosimum*.

Bre'dia. A genus of *Melastomaceæ*, consisting of two species of shrubby plants from Japan and China, with unequal foliage, and terminal cymes of rose-colored flowers. *B. hirsuta* is a very showy plant with rosy-pink flowers, one-half inch across, and is increased readily by cuttings or from seeds. It is a native of Japan and was introduced in 1870.

Bre'xia. From *brexis*, rain; in reference to the protection from rain given by the large leaves of some of the species. Nat. Ord. *Saxifragaceæ*.

A small genus of very handsome evergreen trees, natives of Madagascar. The flowers are of a leathery texture, greenish color, and produced in axillary umbels. They have alternate leathery leaves, furnished with spiny teeth. The plants are readily increased by cuttings, but are too large for ordinary cultivation in the green-house.

Briar-root. A corruption of the French "Bruyère" of which pipes are made, *Erica arborea*.

Bridal-Wreath. A popular name for *Spiræa prunifolia fl. pl.*

Brimstone (Vegetable). The inflammable spores of *Lycopodium clavatum* and *L. Selago*, sometimes employed in the manufacture of fireworks.

Bristle Fern. *Trichomanes radicans*.

Bristly. Covered with stiff hairs.

Bristly Foxtail Grass. See *Setaria*.

Bri'za. Quaking Grass. From *brizo*, to nod; on account of the quaking character of the spike. Nat. Ord. *Graminaceæ*.

A handsome genus of grasses, some of which are cultivated in the garden as ornamental plants. When dried they are highly esteemed for bouquets of dried flowers and grasses. The kinds usually grown are *B. media*, a perennial, and *B. maxima*, a larger species, an annual from the south of Europe. It is of easy culture, requiring only to be sown where it is wanted to be grown, in the open border, as early in spring as the ground can be prepared.

Brizopy'rum. Spike Grass. Name compounded of *briza*, the quaking grass, and *pyros*, wheat. Nat. Ord. *Graminaceæ*.

B. Spicatum, the best known species, is a salt marsh grass, with creeping rootstocks, stems from ten to eighteen inches high, in tufts. It has no agricultural value.

Broccoli. *Brassica oleracea botrytis*. This vegetable somewhat resembles the Cauliflower, from which it is supposed to have originated, although there is nothing definitely known as to its origin. It is, however, more recent than most others of the genus. Miller says it was introduced into England from Italy in 1724, two varieties, white and purple, from which all the present garden varieties have been produced.

Brodiæ'a. Named after *J. J. Brodie*, a Scotch cryptogamist. Nat. Ord. *Liliaceæ*.

Very curious little bulbous-rooted plants. *B. Californica*, with blue and white flowers, is easily cultivated in sandy loam with the convenience of a green-house or cold frame. Increase is sparingly effected by offsets. Introduced in 1848.

Brome Grass. See *Bromus*.

Bromelia'ceæ. The Pine-apple family. A natural order, consisting of short-stemmed plants, with rigid, channeled, and often scurfy and spiny leaves and showy flowers. They are natives of the American continent and islands, whence they have been distributed to Africa and the East Indies. *Ananassa sativa*, the Pine-apple or Ananas, is one of the best known and most delicious of this or any other order. The fruit is composed of the pistils and bracts of several flowers united into a succulent mass, and crowned by a series of green leaves. The fibers of the plant are used in manufactures. The Pine-apple is grown under glass very successfully in Europe, but the fine condition in which they are received here from Jamaica and other places, makes their culture under glass here unnecessary. Some of the Bromeliads grow attached to the branches of trees, and are called Air Plants, the best known here being *Tillandsia usneoides*, the Tree Beard of South America. Under the name of Florida Moss it is very largely used for decorative purposes. It is also used for stuffing cushions, etc., under the name of Spanish Moss, Black Moss, or Long Moss. There are twenty-eight known genera, and 176 species of this order. *Bromelia*, *Ananassa*, *Bilbergia*, *Æchmea*, and *Tillandsia*, are examples of the order. The bracts of some of the species are exceedingly beautiful.

Bro'mus. Brome Grass. So called from *bromos*, the Greek name for a wild oat. Nat. Ord. *Graminaceæ*.

A genus of poor, coarse-growing grasses, of little use in agriculture, and of little beauty. This is the pest of the farmer, to which he applies a significant and a justly proper name, Cheat or Chess. However much it may cheat the farmer by crowding out Wheat and Rye, we cannot excuse him for cheating himself with the absurd delusion, so widely prevalent, that his Wheat has turned into Chess, from some cause which cannot be explained. The species are annuals, and the seed will remain a long time in the ground, and germinate only when the conditions of growth are favorable. It is a native of Europe, though naturalized in many places in this country. *B. Schroederi*, Rescue Grass, or Australian Prairie Grass, is a valuable forage grass, remarkable for the rapidity of its growth and its productiveness. As soon as the first cutting is made a new growth shoots up, and this can be repeated sometimes four or five times during the season, providing it is cut before the seed matures. It thrives in almost any soil, but is better adapted to that which is wet or moist.

Brongnia'rtia. Named in honor of *Brongniart*, a French botanist. Nat. Ord. *Leguminosæ*.

A valuable and rather scarce plant, having flesh-colored flowers. It should be treated as a green-house shrub, potting it in loam and sand. A native of New Spain, introduced in 1827.

Brook Lime. *Veronica Becabunga.*

American. *Veronica Americana.*

Brook Mint. *Mentha hirsuta.*

Brook Weed or **Water Pimpernel.** The popular name of *Samolus*, a common plant in wet or marshy places.

Broom. A name applied to *Cytisus* or *Sarothamnus scoparius*, and also to *Lygeum Spartum*, African Broom is a common name for *Aspalathus*. Butcher's Broom is *Ruscus aculeatus*, and is also a common name for *Ruscus*. Dyer's Broom is *Genista tinctoria*. New Zealand Broom is *Carmichaelia australis*. Rush Broom is a common name for *Viminaria;* it is also applied to *Spartium junceum*. Spanish Broom is *Spartium junceum*. Broom Corn is *Sorghum vulgare*, the branched panicles of which are made into carpet brooms and clothes brushes.

Broom Grass. *Andropogon scoparius.*

Broom Rape. A popular name of the genus *Orobanche.*

Broom Weed. *Corchorus siliquosus.*

Bro'simum. Bread Nut. From *brosimos*, good to eat; the fruit being edible. Nat. Ord. *Artocarpaceæ*.

A small genus of tall-growing trees, natives of the West Indies and South America, where they are highly esteemed for the food obtained from them, and for the valuable timber they furnish. *B. Alicastrum* is the Bread-nut Tree of Jamaica, the fruit of which is about an inch in diameter, and contains a single seed or nut, which is said to form an agreeable and nourishing article of food. When boiled or roasted the nuts have the taste of hazel-nuts. Snakewood or Leopard-wood is the heart-wood of one of the species, *B. Aubletti*, a native of Trinidad and British Guiana. *B. galactodendron*, which is the celebrated Cow Tree of South America, yields a milk of as good quality as that from the cow. It forms large forests on the seacoast of Venezuela, growing 100 or more feet high, with a smooth trunk six to eight feet in diameter. Its milk, which is obtained by making incisions in the trunk, so closely resembles the milk of the cow, both in appearance and quality, that it is commonly used as an article of food by the inhabitants of the localities where the tree abounds. Unlike most other vegetable milks, it is perfectly wholesome, and very nourishing, possessing an agreeable taste, like that of sweet cream, and a balsamic odor; its only unpleasant quality being a slight amount of stickiness. Like animal milk, it quickly forms a yellow, cheesy scum on the surface, and after a few days turns sour and putrefies.

Broughto'nia. Named after *Mr. Broughton*, an English botanist. Nat. Ord. *Orchidaceæ*.

A small genus of very handsome West Indian Orchids, somewhat resembling the *Lælia* and *Cattleya*. They commonly grow on bushes in Cuba and Jamaica. The flowers are crimson and produced from the top of the pseudo-bulb during the summer, and are of long duration. They are of easy culture, growing best on blocks of wood, and should have plenty of light and sun. Propagated by division. Introduced in 1824.

Broussone'tia. Named after *Broussonet*, a French naturalist. Nat. Ord. *Urticaceæ*.

A small genus of trees closely allied to the Mulberry. *B. papyrifera*, is the well-known Paper Mulberry, which is so called on account of its fibrous innerbark being used by the Chinese and Japanese for making paper. It grows wild in China and Japan, and also in many of the islands of the Pacific Ocean, where the natives manufacture a large part of their clothing from its bark. It forms a small tree, attaining about twenty or thirty feet in height, with a trunk seldom more than a foot in diameter, and generally branching at a short distance from the ground. The young branches are covered with short, soft hairs. The bark from the young shoots only, is used for making paper. In the South Sea Islands, a strong cloth is made from this bark, which is commonly used for clothing, either plain or printed, and dyed of various colors.

Browa'llia. Named after *J. Browallius*, Bishop of Abo. Nat. Ord. *Scrophulariaceæ*.

The Browallias are handsome, free-flowering, half hardy annuals. They succeed best started in the green-house and repotted before being planted out; they can, however, be successfully grown by being started in the hot-bed; and often grow well when sown in the open border. The plants will be completely studded over with their beautiful blue or white flowers the whole summer. They are also excellent winter-flowering plants. *B. Jamesoni*, known also as *Streptosolon*, is a beautiful autumn flowering species, with large panicles of bright orange-colored, tubular flowers, with a lighter-colored throat. Re-introduced recently from New Grenada, after being lost to cultivation for over thirty years.

Brown Bugle. *Ajuga reptans.*

Bro'wnea. Named in honor of *Dr. Patrick Browne*, who wrote a history of Jamaica. Nat. Ord. *Leguminosæ*.

A small genus of low evergreen trees chiefly confined to Venezuela and New Grenada. The leaves are alternate, and from one to one and a half feet long, with from four to twelve pairs of entire leaflets. The flowers are rose-colored or crimson, and disposed in terminal or axillary heads. *B. grandiceps* has large and beautiful heads of flowers, of a pink color, arranged in tiers, the outer ones expanding first, followed by the others until all are open, when the flower-head somewhat resembles that of a *Rhododendron*. A singular fact in connection with this plant is, that the leaves droop during the day so as to almost hide the flowers from view, and protect them from the heat of the sun. At evening they rise up again, and remain erect during the night, and the flowers are thus exposed to the falling dew. The species are rarely seen under cultivation.

Brugma'nsia. Named in honor of *Prof. S. J. Brugmans*, a botanical author. Nat. Ord. *Solanaceæ*.

Peruvian shrubs, or low, succulent-stemmed trees, of which *B. suaveolens* (better known by the name of *Datura arborea*), *B. Knightii*, and *B. sanguinea* are magnificent species. Being large plants, growing to the height of ten or twelve feet, they look best when planted in the ground in a conservatory; but they will grow well in large pots, or they may be planted in the open garden in the summer season, and taken up and preserved in a cellar, from which the frost is excluded, during winter, to be replaced in the open border the following spring. The flowers, popularly called Angels' Trumpets, are trumpet-shaped, a foot or more in length, and very fragrant. The plants grow freely in light, rich soil; and they are readily propagated by cuttings either of the shoots or roots.

Brune'lla. Name changed from *Prunella*, which see.

Brunfe'lsia. A name given to a genus of *Scrophulariaceæ*, in honor of *Otto Brunfels*, of Metz, who published the first good figures of plants in 1530.

Elegant free-flowering evergreen plants, natives of South America and the West Indies. *B. calycina* has large purple flowers disposed in large trusses, which are produced in succession throughout the whole year. *B. confertiflora*, has light blue flowers, borne on terminal heads or cymes. All the species are fragrant, and may be propagated by cuttings.

Brunsvi'gia. Named after the house of Brunswick. Nat. Ord. *Amaryllidaceæ*.

Of this splendid genus of Cape bulbs, Sweet observes: "Some of the bulbs grow to a great size, and require large pots to have them flower in perfection; or, if planted out in the open borders in spring, there will be a better chance of their flowering, taking the bulbs up again in autumn; or the best way to succeed well with them is to have a pit built on purpose for them, so as to occasionally be covered with the lights to keep off too much wet, and to be covered close in severe weather, as they cannot bear the frost. The mould must be made for them of full one-third sand, more than one-third of turfy loam, and the rest of leaf mould, all well mixed together, but not chopped too small, as the roots run better through it for being rough and hollow. When in full growth and flower they require a frequent supply of water, but none while dormant." *B. Josephinæ* is very seldom induced to flower in this country, though it is no uncommon occurrence in its native country, where it is said to produce very large heads of flowers. Several species flower more freely, though none so grand. Propagated by offsets.

Brussels Sprouts. *Brassica oleracea bullata geminifera*, a variety of the Cabbage, which see.

Bryo'nia. From *bryo*, to sprout; in allusion to the quick growth of the stems. Nat. Ord. *Cucurbitaceæ*.

A genus of climbing, hardy herbaceous perennials, natives of Europe, the East Indies, and the Cape of Good Hope. *B. alba* and *B. dioica* are generally considered by botanists to be one species, the only difference being in the color of the berries. The species is what is generally known as the Common Bryony, and is found in the hedgerows of Great Britain. It has a very large tuberous root, from which twining stems spring, which are annual and rough. The plants climb by tendrils, and, what is very unusual, the direction of the spiral is now and then changed, so

that, after proceeding in one course for some distance, the tendril suddenly changes to an opposite direction. The male and female flowers are in separate clusters; sometimes, though not always, they are on different plants. The plant has a fetid odor, and possesses acrid, emetic and purgative properties, and from its elegant appearance in autumn, with its brilliant colored fruit, accidents not unfrequently occur to children and others, incautiously tasting the fruit, which is an active poison. Singularly enough, the young shoots may be cooked and eaten with impunity. When served up in the same manner as Asparagus, they are said to equal it in flavor. Many of the species are not poisonous, and are much valued for their medicinal properties.

Bryono'psis laciniosa, is a beautiful cucurbitaceous annual climber with palmately, five-cleft leaves, yellow flowers and very pretty fruit about the size of a cherry, green marbled with white. It was introduced from Ceylon in 1710. It is now placed under *Bryonia*, by some authors.

Bry'ony. See *Bryonia.*

Bryophy'llum. So named from *bryo*, to grow, and *phyllon*, a leaf; in reference to the circumstances of the leaf, when laid upon damp earth, emitting roots, whence arise young plants. Nat. Ord. *Crassulaceæ.*

B. calycinum, a species common in the green-house, is a native of India. When in flower it is quite handsome, producing loose panicles of drooping, greenish-purple flowers. It is very easily grown.

Buchu, Bucha or Buka. A name applied in South Africa to the leaves of several species of *Barosma.*

Buchne'ra. A syn. for *Stephandra.*

Buckbean. The common name of a plant belonging to the Gentian family, *Menyanthes trifoliata*, common in wet places and of little interest.

Buckeye. See *Æsculus.*

Bucklandia. Named after *Dr. Buckland*, a professor of geology at Oxford. Nat. Ord. *Hamamelidaceæ.*

B. Populnea, the only species in cultivation, is one of the most beautiful trees of the forests of the Sikkim Himalayas at an elevation of 4,000 to 6,000 feet. It attains a height of one hundred feet, with a cylindrical trunk, and oblong crown of evergreen foliage. The leaves are orbicular-cordate and may be likened to those of a Dioscorea, being when young of a rosy purple color with golden-green veins. Introduced in 1875.

Buckthorn. See *Rhamnus.*

Buckwheat. *Fagopyrum esculentum.* The common Buckwheat is a native of Central Asia, and has long been under cultivation. It is more extensively grown as an article of food in this country than in any other, Buckwheat cakes being purely an American institution. It thrives on a poor soil that would not sustain many other plants, and give a fair yield. Of the improvement in the quality of this grain from its native wild state we have no record. There are several varieties grown, but the quality depends largely upon soil and climate. The *Japanese Buckwheat* lately introduced has proved to be a great improvement on the ordinary sorts, the kernels being at least twice the size of any other variety, peculiar in shape, and of a rich dark shade of brown in color. Flour made from it is equal in quality, if not superior to any other sort. It is enormously productive, yielding two or three times as much as any other sort, both in grain and straw.

Buckwheat Tree. *Cliftonia (Mylocaryum) ligustrina.*

Budding. This is the practice in use of placing a bud of one variety of plant on another. The shoot or stock to be budded upon must always be in a thrifty, growing state, so that the bark can be raised freely from the wood, and the bud to be inserted must be in such a state that it shows prominently at the axil of the leaf. Select a smooth portion of the stem of the shoot to be budded upon, strip it of leaves (or thorns, if any) sufficient to allow room for the operation; then make a cut through the bark to the wood in length sufficient to admit the bud, with a cross cut at the top. Above this cross cut make a slight sloping cut in the bark, about a quarter of an inch in length, so as to admit the easy insertion of the bud. This custom is not general, but it will be found to be easier, and, we think, safer. Next take the shoot from which the bud to be inserted is to be cut, and selecting such as have the properly developed condition of bud, cut it from the shoot about half an inch on each side of the bud, just deep enough to get about as much thickness of the wood as the bark. If the portion of the shoot from which the bud is taken is well ripened, it is best to separate the wood from the bark; but if not, it will do quite as well not to remove it, but insert the bud in the stock just as it is cut. The edges of the cut in the stock are lifted and slightly pressed outward by the point of the budding-knife, the bud inserted, and pushed down by the ivory handle. To keep the bud in place it is wrapped neatly round with any soft tying material, the fiber known as Raphia being the best. In two or three weeks after the bud has been put in it will be safe to remove the tying. All shoots starting *below* the bud must be rubbed off as soon as they start, and when the bud begins to grow, the portion of the stock *above* the graft must be cut off, so that the inserted bud may get the full benefit of growth.

Buddle'ia. Named after *A. Buddle*, an English botanist. Nat. Ord. *Scrophulariaceæ.*

An extensive genus of herbaceous plants, shrubs, and low-growing trees. Leaves opposite and thickly covered with hairs. The flowers of some of the species are very beautiful and fragrant; they are mostly small, bright orange, purplish or lilac, and arranged in small globular heads, on long peduncles. They are natives of South America, Mexico, Africa, and tropical Asia. Some of the species are half-hardy, and would be likely to succeed well, south of Washington.

Buffalo Berry. Missouri. *Shepherdia argentea.*

Buffalo Grass, or Buffalo Clover. See *Trifolium.*

Buffalo Nut. *Pyrularia oleifera.*

Bugle. See *Ajuga reptans.*

BUG

Bugle Weed. The popular name of *Lycopus Virginicus.*

Bugloss. *Lycopsis arvensis.*

Bugloss. Cowslip. *Pulmonaria officinalis.*

Bugloss. Viper's. *Echium vulgare.*

Bulb. An underground bud, consisting of numerous fleshy scales placed one over the other; a modified form of the leaf bud. A bulb is usually placed partly or entirely underground. There are several kinds of bulbs, the following being the most common: A *Naked Bulb* is a bulb whose scales are loose and almost separate, as in the Crown Imperial. A *Tunicated Bulb* is one whose fleshy scales overlap each other, forming concentric layers, the outer ones being thin or membraneous, such as Hyacinths, Onions, Tulips, etc. A *Solid Bulb* is properly a *Corm*, which see.

Bulbiferous. Bearing or producing bulbs.

Bulbil. An axillary bulb with fleshy scales, falling off its parent spontaneously, and propagating it. Applied more especially to those buds on the stem, which occasionally assume the character of bulbs, as in *Lilium tigrinum.*

Bulbi'ne. From *bolbos*, a bulb. Nat. Ord. *Liliaceæ.*

Half-hardy plants, available for flower-gardening purposes. They are showy, fragrant, do not require any particular care in their management, and are propagated rapidly by cuttings. Natives of the Cape of Good Hope; introduced in 1820.

Bulboco'dium. From *bolbos*, a bulb, and *kodion*, wool; referring to the woolly covering of the bulbs. Nat. Ord. *Melanthaceæ.*

Very handsome hardy bulbs, bearing purple flowers, and well deserving of attention. They should be carefully watered in dry weather. *B. vernum*, one of our earliest spring flowers, was introduced from Spain in 1629. The other species, *B. versicolor*, flowering towards the autumn, was introduced from the Crimea in 1820.

Bulbophy'llum. Nat. Ord. *Orchidaceæ.*

A genus of Orchids containing a number of species, few of which are worth cultivating except as curiosities.

Bullace. *Prunus insititia.*

Bullace. Jamaica. *Melicocca bijuga.*

Bullate. Blistered, or puckered.

Bull-rush, or Club-rush. The popular name of the genus *Scirpus*; also *Typha latifolia.*

Bume'lia. The Greeks gave this name to the common Ash. Nat. Ord. *Sapotaceæ.*

A genus of spiny shrubs, with hard wood, remarkable for the beauty of their foliage. Natives of the West Indies and the Southern United States. Our native species are locally known as Gum Elastic, Shittim-wood, Iron-wood, Saffron Plum, etc.

Bunch-berry. A common name of *Cornus Canadensis*, Dwarf Cornel or Dog-wood.

Bu'nium. A genus of tuberous-rooted umbelliferous plants, chiefly inhabitants of southern Europe and western Asia; interesting on account of their producing edible tubers. Those of *B. flexuosum*, a native of Britain, are called Ar-nuts, Pig-nuts, Kipper-nuts, etc. *B. ferulæfolium*, produces tubers as large as hazel nuts,

BUR

which are eaten by the Greeks under the name Topana.

Bu'phane. A misprint (subsequently corrected by Herbert), for *Buphone*, from *bous*, an ox, and *phone*, destruction, in allusion to the poisonous properties of the plant, but *Buphane* is the name adopted by the authors of the "Genera Plantarum," and by Baker in his "Amaryllideæ." Nat. Ord. *Amaryllidaceæ.*

A small genus of South Africa bulbs, formerly included in the genus *Brunsvigia.* They are remarkable in having precocious flower-scapes, with from 100 to 200 flowers in a single head. *B. toxicaria* is called the Poison Bulb, and is said to be fatal to cattle. *B. disticha* has immense bulbs, the flowers of the former are flesh-colored, and quite small; those of the latter orange-red. All this class are quite difficult to manage. They succeed best grown in a pit, and protected against cold and wet.

Buphtha'lmum. Ox-eye. From *bous*, an ox, and *ophthalmos*, an eye; in allusion to the resemblance the disk of the flowers bears to an ox's eye. Nat. Ord. *Compositæ.*

A genus including many hardy annuals, perennials, and green-house evergreen shrubs. Two of the more conspicuous species are hardy perennials, natives of Central Europe. They grow from a foot to a foot and a half high; leaves narrow, flowers large, bright yellow. They have too weedy an appearance for a collection of choice plants.

Burbi'dgea. Named after *F. W. Burbidge*, the discoverer of the genus in Borneo. Nat. Ord. *Scitamineæ.*

B. nitida, the only described species, is a very large, brilliant-flowered, stove-house herbaceous perennial, allied to *Hedychium.* Its flowers are bright orange scarlet, borne in many-flowered terminal panicles four to six inches long. It was introduced from N. W. Borneo in 1879, and is increased by division.

Burdock. The well-known popular name for *Lappa officinalis*, of which there are two varieties, *minor* and *major*; the common Burdock being the latter.

Bur Grass. *Cenchrus echinatus.*

Burlingto'nia. Named after the *Countess of Burlington.* Nat. Ord. *Orchidaceæ.*

A genus of very handsome epiphytal Orchids, inhabiting Brazil. They are remarkable for their long, pendulous racemes of snow-white flowers, with the lip touched or lined with yellow. A few of the species have flowers in which yellow or lilac colors predominate. The plants of this genus are all of dwarf habit, with beautiful evergreen foliage. They will grow either on cork or in baskets, and are propagated by division. Introduced in 1824.

Burma'nnia'ceæ. A natural order differing principally from *Orchidaceæ* in their having perfectly regular flowers. They are all herbaceous plants bearing blue or white flowers, and inhabit marshy or shady places. With the exception of *Burmannia biflora*, which is found in Virginia, they are all tropical species.

Bur Marigold. One of the common names of the genus *Bidens.*

Burnet. See *Poterium Sanguisorba.*

Saxifrage. *Pinpinella Saxifraga.*

BRYONOPSIS.

BULBOCODIUM VERNUM.

BROMUS BRIZÆFORMIS.

BUCKWHEAT (JAPANESE).

BROMUS INERMIS (AWNLESS BROME GRASS).

CALANDRINIA.

CALAMPELIS.

CALLIOPSIS (DWARF).

CALCEOLARIA.

CALENDULA.

CACTI (GROUP OF).

CALOCHORTUS.

BUR

Burning Bush. *Dictamnus Fraxinella.* American. *Euonymus atropurpureus.*

Burtonia. Named after *D. Burton*, a collector for the Kew Gardens. Nat. Ord. *Leguminosæ.*

A small genus of dwarf, heath-like shrubs, natives of Australia. The flowers are pea-shaped, axillary, and often thickly gathered on the ends of the branches; the corolla rich purple, the keel of a deeper color, and the standard generally having a yellow blotch at its base. There are only a few species under cultivation, but they are all conspicuous objects in the green-house. They come into flower in April, and are propagated from cuttings of the half-ripened wood. Introduced in 1803.

Bur Reed. See *Sparganium.*

Burweed. The common name for *Xanthium.*

Bush Clover. The popular name of the genus *Lespedeza.*

Bush Honeysuckle. A popular name for the genus *Diervilla.*

Butcher's Broom. See *Ruscus.*

Butoma'ceæ. An order of aquatic plants now generally included under *Alismaceæ.*

Bu'tomus. Flowering Rush. From *bous*, an ox, and *temno*, to cut; in reference to its acrid juice causing the mouth to bleed. Nat. Ord. *Alismaceæ.*

B. umbellatus is a beautiful aquatic plant, common in the marshes of Great Britain. Gerarde (1629), in speaking of this plant says: "The Water Gladiole, or Grassie Rush, is of all others the fairest and most pleasant to behold, and serveth very well for the decking and trimming up of houses, because of the beautie and braverie thereof." A variety with striped leaves, lately introduced, is now highly recommended for collections of aquatic plants.

Butter-and-Eggs. A local name for *Linaria vulgaris.*

CAB

Butter-Bur. *Petasites vulgaris.*

Buttercup. See *Ranunculus.*

Butterfly Flower. The genus *Schizanthus.*

Butterfly Orchid. *Oncidium Papilio.* E. Indian. *Phalænopsis amabilis*, and others.

Butterfly Orchis. *Habernaria chlorantha*, and *H. bifolia.*

Butterfly Pea. A name sometimes given to *Clitoria.*

Butterfly Weed. A popular name for *Asclepias tuberosa.*

Butternut See *Juglans.*

Butter Tree. See *Bassia.*

Butterwort. See *Pinguicula.*

Button Bush. *Cephalanthus occidentalis.*

Button Flower. The genus *Gomphia.*

Button Snake-root. *Liatris pycnostachya.*

Button Weed. *Centaurea nigra.*

Button Wood. See *Platanus.*

Bu'xus. A small but important genus of Spurgeworts (*Euphorbiaceæ*), one species of which is the well known common evergreen Box of our gardens, employed both as an ornamental shrub and as an edging plant for walks, etc. It is a native of both Europe and Asia, but found principally in Spain, Italy, the coasts of the Black Sea, Persia, Northern India and Japan. It varies considerably in height, some varieties growing twenty-five to thirty feet, with a trunk of eight to ten inches in diameter, while others never exceed three to four feet, and have very small stems. It is most valued for its wood, the chief characteristics of which are, excessive hardness, great weight, evenness and closeness of grain, light color, and being susceptible of a fine polish. These are the qualities that render it so valuable to the wood engraver, the turner, mathematical and musical instrument makers, and others.

C.

Caapeba, Pareira Brava Root, or Velvet-Leaf. See *Cissampelos.*

Cabbage. *Brassica oleracea.* For the following history of the Cabbage we are indebted to the Treasury of Botany:

"The Cabbage, in its wild state, is a native of various parts of Europe, as well as of several places near the sea in England. It is a biennial, with fleshy-lobed leaves, undulated at the margin, and covered with bloom; altogether, so different in form and appearance from the Cabbage of our garden that few would believe it could possibly have been the parent of so varied a progeny as are comprised in the Savoy, Brussels Sprouts, Cauliflower, Broccoli, and their varieties. A more wonderful instance of a species producing so many distinct forms of vegetation for the use of man is scarcely to be met with throughout the range of the vegetable kingdom. The common, or cultivated Cabbage, *B. oleracea capitata*, is well known, and from a very early period has been a favorite culinary vegetable, in almost daily use throughout the civilized world. The ancients considered it light of digestion when properly dressed, and very wholesome if moderately eaten. For the introduction of our garden variety of Cabbage we are indebted to the Romans, who are also believed to have disseminated it in other countries. It is said to have been scarcely known in Scotland until the time of the Commonwealth, when it was carried there from England by some of Cromwell's soldiers; but it now holds a prominent place in every garden throughout the United Kingdom." From its wild state the Cabbage has been brought to its present state of perfection very gradually,

by careful selection under cultivation. The various stages of these improvements have not been sufficiently noted to enable us to award the credit where it properly belongs. All the Cabbage tribe requires the soil to be rich, deep and well drained—naturally or artificially—and abundantly manured. For the early kinds plant thirty inches between rows and sixteen inches between the plants, and for late kinds plant three feet by two feet. In the improvements made within the last fifty years the market gardeners around New York have taken a conspicuous part, and to them we are indebted for our best market varieties. The three most popular kinds for market purposes are "Early Wakefield," "Early Summer" and "Succession." The Red Cabbage, *B. oleracea rubra*, is an entirely distinct variety, but its origin and early development are unknown. It has been known in Holland for several hundred years, and the Dutch have made the growing of the seed an extensive business. The Savoy Cabbage, *B. oleracea bullata*, differs but little from the other kinds of Cabbage. It is distinguished by its leaves being wrinkled in such a manner as to have a netted appearance. The Savoys are remarkable for their tender, crisp leaves and excellent flavor. It would seem not to be generally known that the Savoys are the most delicious of all the Cabbages. The Brussels Sprouts, or Bud-bearing Cabbage, *B. oleracea bullata geminifera*, originated in Belgium, and has from a very early date been extensively grown around Brussels, where it seems to thrive better than in most other countries. It forms a head somewhat like the Savoy, of which it is considered a subvariety, differing in the remarkable manner in which it produces at the axils of the leaves, along the whole length of the stem, a number of small sprouts resembling miniature Cabbages of one or two inches in diameter, of an excellent flavor.

Cabbage. Arkansas. *Streptanthus obtusifolius.* Skunk, or Meadow. *Symplocarpus fœtidus.*

Cabbage Maggot. See *Insects.*

Cabbage Palm. See *Areca* and *Oreodoxa oleracea.*

Caca'lia. Tassel Flower. From *kakos*, pernicious, and *lian*, exceedingly; supposed to be hurtful to the soil. Nat. Ord. *Compositæ.*

C. coccinea, the only species worthy of cultivation in the flower garden, is a half-hardy annual, that can be grown readily from seed sown where wanted to grow. Its bright scarlet blossoms are borne in profusion from July to October. Introduced from New Holland in 1792.

Caca'o or Coco'a. The seeds of *Theobroma Cacao*, which form the chief ingredient in pure chocolate.

Caccinia. Named in honor of *G. Caccini*, an Italian Savant. Nat. Ord. *Boraginaceæ.*

A small genus of hardy perennial herbs, natives of the Orient. *C. glauca*, the only species yet in cultivation, has racemose cymes of violet-blue flowers changing to red. It grows from one to three feet high, and may be increased by seeds or division. Introduced from Afghanistan in 1880.

Cacta'ceæ. A natural order consisting of succulent shrubs, with remarkable spines clustered on the stems, which are angular, round, two-edged, or leafy, and have their woody matter often arranged in a wedge-like manner. The calyx consists of numerous sepals, the petals are numerous; the stamens are numerous, with long filaments. The fruit is succulent, and the seeds without albumen. They are natives of various parts of America, but have been introduced into many parts of the world. The fruits of the *Opuntias* are called Indian Figs, and are edible, having a sub-acid and refreshing juice. The stems of some of the species are eaten by cattle. These stems vary greatly in form, some being spherical, others jointed, while still others are triangular, and some send polygonal shafts sixty feet or more into the air. These stems are very succulent or fleshy, and the plants are thus adapted to dry climates, or, rather, such as have a "dry season." Among the tall-growing kinds may be mentioned *Cereus giganteus*, growing sixty or more feet high, and from one to two feet in diameter; *C. Peruvianus*, with stems thirty to forty feet high; *C. Thurberi*, with stems ten to fifteen feet high, and *C. Schottii*, with stems eight to ten feet high. The spines on some Cacti are very formidable, and on others very numerous. The spines and bristles on a specimen of *Echinocactus platyceras* were reckoned at 51,000, and those of a *Pilocereus senilis* at 72,000. *Opuntia vulgaris*, our common Prickly Pear, bears an edible fruit. *O. cochinillifera* (*Nopalea*), the Nopal plant, is very largely grown for rearing the Cochineal insect (*Coccus Cacti*). The number of known genera is eighteen, and there are over eight hundred species. *Cereus*, *Epiphyllum*, *Phyllocactus*, *Mammillaria*, *Melocactus*, *Pereskia*, etc., are examples of this order.

Ca'ctus. A name applied by Theophrastus to semi-spiny plants. Nat. Ord. *Cactaceæ.*

The very remarkable succulent plants, arranged by Linnæus under the name of Cactus, have been distributed by modern botanists over numerous genera, which they are still continually changing and re-arranging. At first a few plants were left in the genus Cactus, but now that genus is annihilated, and seven or eight new genera substituted for it; still, as all the plants that once composed it, and the new ones of the same nature that collectors are continually sending home, are known by the general name of Cacti, it has been thought advisable to give here a slight sketch of the whole family. In the time of Linnæus very few Cacti were known, and even in the year 1807, Persoon enumerated only thirty-two; but now about 500 living species are to be found in a single collection, and numbers of new species are being sent home by collectors every year. These new species are chiefly found in the tropical regions of America, but they extend over 75° of latitude, some being found within the boundary of the United States and some near the town of Conception, in Chili. By far the greater number, however, grow in the dry, burning plains of Mexico and Brazil, where they are subjected to the alternate seasons of extreme moisture and extreme drought. In these arid plains, where all nature seems parched up for six months in the year, the Cacti have been mercifully provided to serve as

reservoirs of moisture, and not only the natives, by wounding the fleshy stems with their long forest knives, supply themselves with a cool and refreshing juice, but even the cattle contrive to break through the skin with their hoofs, and then to suck the liquid they contain, instinct teaching them to avoid wounding themselves with the spines. Some of the species serve the Indians with food. The Cacti are arranged by nature into several distinct groups, the first of which consists of the tree Cacti, or those kinds of Cereus which have long, slender stems, and which usually grow on the summits of the mountains of Mexico and Brazil, forming a singular kind of crest. These are generally thirty or forty feet high, and sometimes are branched like candelabra, and sometimes consists of only one naked stem, not thicker than a man's arm, though of such enormous height. Others, again, not only grow to a height of fifty or sixty feet, but have a diameter of two or three feet. The Mammillarias and Echinocacti, which form another group, grow in the valleys of the temperate regions, generally in loamy soils and low grass; and the Opuntias and Pereskias, which form two others, are also principally found in the temperate latitudes. The Melocacti, or Melon Cacti, and the Rhipsalis, which has narrow-jointed stems, and two other groups, are found in the hottest parts of the tropics. With regard to the culture of Cacti, it is found that, generally speaking, they ought to have a season of complete rest, followed by one of excitement. They ought to be watered sparingly while dormant, and freely when in bloom, and grown in a light, sandy soil. Several of the best known genera of Cactus, such as *Epiphyllum*, *Cereus* and *Phyllocactus*, will be found under their respective heads.

Cactus. Cochineal. *Opuntia cochinillifera* and *O. Tuna.*
Old Man. *Pilocereus senilis.*
Rat's Tail. *Cereus flagelliformis.*
Turk's Cap. The genus *Melocactus.*

Cactus Dahlia. *Dahlia Juarezii.*

Caducous. Falling off soon; deciduous.

Cæsalpi'nia. In memory of *Andreas Cæsalpinus*, chief physician to Pope Clement VIII. Nat. Ord. *Leguminosæ.*

A genus of tropical trees of considerable importance in an economic point of view, but without special beauty. *C. coriaria*, a West Indian and South American species, yields large quantities of tannin, which is extracted from its seed pods. *C. Braziliensis*, furnishes the Brazil-wood, exceedingly valuable for dyeing purposes, and an important article of commerce.

Cæsius. A pale blue; a blue metallic luster seen on some leaves, as those of *Selagineila cæsia.*

Caffre Bread. A South African name applied to various species of *Encephalartos*, and *Zamia.*

Cæruleus. Blue; the clear blue of the sky.

Cæspitose. Growing in little tufts or patches.

Caja'nus. Pigeon Pea. From *catjang*, its Malabar name. Nat. Ord. *Leguminosæ.*

A genus of valuable perennial shrubs, cultivated in the tropics for their seeds, which constitute an important article of food. *C. indicus*, is a native of the East Indies, but is now naturalized and cultivated in the West Indies, and most other tropical countries. Of this species there are two varieties, one is called the Congo Pea, in Jamaica, and furnishes the negroes with their principal food. The variety *flavus* is called in the West Indies No-eye Pea, and is considered in its green state but little inferior to our garden Peas, and, when dried and split, quite as good. Pea-meal of very good quality is prepared from both varieties. Horses and cattle are very fond of the young branches and leaves, either in a fresh or dried state. Although perennial shrubs, they are usually treated as annuals; after the seeds are gathered the plants are used for fuel.

Cajeput-tree. See *Oreodaphne.*

Calabar Bean, or Chopnut. *Physostigma venenosum.*

Calabash. Sweet. The fruit of *Passiflora maliformis.*

Calabash-Tree. Various species of *Crescentia.*

Cala'dium. A word of uncertain derivation, probably from *kaladion*, a cup. Nat. Ord. *Aroideæ.*

Of this genus of tuberous-rooted plants there are many rare and beautiful species and varieties that rank high as ornamental foliage plants, useful only as green-house or rather hot-house plants, as they will not succeed well with a temperature below 60°. They must be kept dormant from October to April, and should never be chilled when started to grow. Those found in the swamps of the River Amazon, in the province of Para, are pre-eminent for graceful growth, and for elegant and brilliant markings. All the species are easily propagated by division of the tuber, just as the growth begins. Introduced in 1828. The plant commonly known as *Caladium esculentum* does not belong to this genus, and will be described under *Colocasia.*

Calamagro'stis. A genus of coarse-growing grasses, a description of which will be found under *Ammophila*, a division of the genus.

Calamint. See *Calamintha.*

Calami'ntha. Calamint. From *kalos*, beautiful, and *mintha*, mint. Nat. Ord. *Labiatæ.*

A genus of coarse-growing, hardy herbaceous perennials, with purplish or whitish flowers. They are indigenous or extensively naturalized in many parts of this country. They are mostly aromatic herbs, and formerly had important medicinal properties attributed to them. *C. nepeta*, Basil Thyme, is one of the best known species. None of them has sufficient merit to warrant its introduction into the garden, either for ornament or use.

Cala'mpelis. (*Eccremocarpus.*) From *kalos*, beautiful, and *ampelis*, a vine. Nat. Ord. *Bignoniaceæ.*

The only species, *C. scabra*, is a well-known, beautiful, half-hardy climbing plant. Trained to a trellis or to a south wall in the open air, it forms a very ornamental object through the summer months, its bright orange-colored flowers being conspicuous among the pleasing delicate green of the foliage. It grows best in rich loam, and should be protected in a cold pit through the winter. Cuttings root

readily in a gentle heat. Introduced from Chili in 1824.

Ca'lamus (a Reed). This word has been restricted to hollow, inarticulate stems, like those of Rushes.

Ca'lamus. From *kalamos*, a reed, an old Greek name. Nat. Ord. *Palmaceæ*.

An elegant genus of Palms very useful in their young state for house decoration. *C. Rotang, C. rudentum, C. viminalis*, and probably several other species furnish the canes or rattans so commonly employed for the bottoms of chairs, couches and similar purposes. In the countries where these palms abound, the inhabitants make use of them for a great variety of purposes, baskets of all kinds, mats, hats and other useful articles being commonly made of them. Their most important use however, is for the manufacture of the ropes and cables usually employed by junks and other coasting vessels. *C. Scipionum*, the stems of which are much thicker than the preceeding, furnishes the well known Malacca canes so much prized for walking-sticks. There are over two hundred species in this genus, all natives of tropical and sub-tropical regions, more especially Eastern Asia.

Calamus aromaticus. An old name for the Sweet Flag, *Acorus calamus*.

Calandri'nia. Named after Calandrini, a German botanist. Nat. Ord. *Portulacaceæ*.

Very beautiful dwarf-growing plants, usually treated as tender annuals, though of perennial duration if protected in winter. The seeds may be sown in gentle heat about the middle of March, and when planted in the open air in May, become a blaze of beauty whenever the sun shines upon them. The soil should be light and rather dry. The best of the species are *C. speciosa, grandiflora, discolor*, and *umbellata*. Introduced from South America.

Cala'nthe. From *kalos*, beautiful, and *anthos*, a flower; literally, a pretty blossom. Nat. Ord. *Orchidaceæ*.

A large genus of stemless terrestrial Orchids, having broad, many-ribbed leaves, and long spikes of flowers, which are of various colors, white, lilac, purple, and copper-colored. They require a very light house for the perfect development of flowers and to give them good color. The same general treatment as given the Bletia, with the exception of more careful watering, is all they require. Most species are natives of tropical Asia, and are propagated by division of the roots. Introduced about 1820.

Cala'thea. Zebra Plant. From *kalathus*, a basket; in reference to the leaves being worked into baskets in South America. Nat. Ord. *Scitamineæ*.

A genus of interesting plants, with beautifully marked foliage, distinguished from *Maranta* by mere botanical characters. Many of the most beautiful species of the latter have been transferred to this genus. *C. Veitchii, zebrina, Vanden Heckii, regalis, Makoyana, Massingeana*, and many others are among the most beautiful and showy of warm green-house or stove plants. They are mostly natives of Brazil, and require a high temperature and humid atmosphere for perfect development. They are increased by root division.

Calcariform. Shaped like a spear.

Calceola'ria. Slipperwort. From *calceolus*, a slipper, in reference to the shape of the flower. Nat. Ord. *Scrophulariaceæ*.

The numerous species of this well-known genus, found abundantly in the regions of Chili and Peru, are divided into two classes, herbaceous and shrubby. The former are found near the line of the sea, the latter are inhabitants of the higher parts of the Cordilleras; hence it is, that among the many introduced species, some are more or less hardy, growing freely in a shady border, and others require the humid atmosphere of a green-house. Many of the original species have been modified by hybridizing, and are rarely found in collections. The hybrids are very numerous, and many are highly prized. The European florists, having made a specialty of this genus, have brought out varieties remarkable for size, color and markings. Propagation of the herbaceous varieties is readily effected by seeds, and the shrubby varieties by cuttings or from seeds.

Calceolate. Having the form of a slipper, or round-toed shoe.

Cale'ndula. Pot Marigold. From *calendæ*, the first days of the months; in reference to its flowers being produced almost every month. Nat. Ord. *Compositæ*.

There are several handsome species, some of which are shrubby and some annuals. The common Marigold, *C. officinalis* and its double varieties, and *C. stellata*, are the handsomest of the annual species. The Cape Marigolds, *C. pluvialis* and *C. hybrida*, have been removed to a new genus, which is called *Dimorphotheca*. Both these species are hardy annual plants, with very elegant flowers, which close at the withdrawal of the sun; and as they do not open at all when it is dark, or heavy clouds foretell the approach of rain, Linnæus called the commonest species *C. pluvialis*, or the Rainy Marigold. The florets of the ray of the flowers of this plant are of a pure white inside, and of a dark purple on the outside; while those of *C. hybrida* are of a dingy orange outside. A tincture is made from the flowers of the several varieties, that is considered highly efficacious for bruises or sprains, affording relief more quickly than arnica.

Calico Bush. See *Kalmia latifolia*.

California Fuschia. See *Zauschneria*.

California Laurel. See *Oreodaphne*.

California Nutmeg. See *Torreya Californica*.

California Poppy. See *Eschscholtzia*.

Calisa'ya Bark, or Yellow Cinchona Bark Tree. See *Cinchona Calisaya*.

Calla. Water Arum. From *kallos*, beauty. Nat. Ord. *Aroideæ*.

C. palustris, the only species, is an herbaceous marsh plant, of but little interest, common in swamps throughout the Northern States. The roots yield an edible starch, and were formerly procured for that article; but they are no longer used for that purpose, and the plant is without special merit. *Richardia Æthopica*, so well known as the "Calla Lily," is frequently erroneously called *Calla Æthopica*.

Calla. Black. See *Arum sancta*.

Callica'rpa. From *kalos*, beautiful, and *carpos*, fruit; referring to the beautiful berries. Nat. Ord. *Verbenaceæ*.

A considerable genus of low-growing shrubs, mostly tender evergreens. *C. Americana*, a species common from Virginia southward, is a hardy deciduous shrub, of great beauty, and one of the most desirable for the lawn or shrubbery border. In a good soil it grows about four feet high, very branching from near the root, giving the plant a most graceful outline. The flowers are small, inconspicuous, in numerous axillary cymes or clusters. The beauty of the plant consists in its clusters of violet-colored berries, which are exceedingly showy from September until December. It is freely propagated by seed or from cuttings. *C. Japonica* is also hardy, with a little protection.

Calli'chroa. This genus of Californian *Compositæ* is now usually included under *Layia*, which see.

Callio'psis. Derived from *kallistos*, beautiful, and *opsis*, the eye; in allusion to the beautiful bright eye of the flower. Nat. Ord. *Compositæ*.

This is a genus of showy annuals, separated from *Coreopsis*. They are of a hardy character, requiring only to be sown in rich earth about the end of March, and afterward thinned out. Those taken up for the purpose may be transplanted, and will afford a later bloom. They usually attain a height of about three feet, and, consequently, should be sown some distance from the margin of the bed. If a very early bloom be desired, a few plants may be raised on heat and transplanted in May. All are American plants, found from Arkansas to Texas.

Callipro'ra. Pretty Face. From *kallos*, beauty, and *prora*, a front; referring to the front view of the flowers. Nat. Ord. *Liliaceæ*.

C. lutea, the only species, is a beautiful little yellow-flowering California bulb, the flowers of which are produced in August, in umbels, drooping, on short scapes. Not hardy in this climate. Propagated by offsets. Syns. *Brodiæa ixioides*, and *Milla ixioides*.

Callirho'e. Named for Callirhöe, a daughter of the river-god Archelous. Nat. Ord. *Malvaceæ*.

This genus of American plants comprises both annuals and perennials. The former are a showy, free-blooming class, somewhat resembling the Scarlet Linum; the latter produce flowers much larger and very beautiful, but are rarely met. The annual varieties grow readily from seed; the perennials from seed or by division of the root. Syn. *Nuttallia*.

Callista'chys. From *kalos*, beautiful, and *stachys*, a flower-spike. Nat. Ord. *Leguminosæ*.

Green-house plants from New Holland, producing beautiful yellow flowers. They grow readily and without trouble under ordinary treatment. Cuttings strike freely in sand, covered with a glass. Introduced in 1815. Syn. *Oxylobium*.

Calliste'mon. A name indicative of the beauty of the stamens, which are of a beautiful scarlet color. Nat. Ord. *Myrtaceæ*.

All the species of this genus are very ornamental, and neat in habit. Natives of Australia, and well adapted for a cool green-house or conservatory. *Metrosideros speciosa* is a synonym for *C. speciosus*.

Calliste'phus. China Aster. From *kallistos*, most beautiful, and *stephos*, a crown. Nat. Ord. *Compositæ*.

C. Chinensis is the well-known China Aster, the varieties of which are so universally grown. The seed should be sown in March on a gentle heat for the earliest bloom, and others may be sown in the open ground as soon as it is fit to work, to afford a succession of flowers. The first, after being gradually inured to the open air, may be removed to their destined places as soon as danger from frost is past. The soil for them cannot be too rich; on this, and selecting an open situation, rests all the art of obtaining fine flowers. There are so many varieties now in cultivation that it is impracticable to particularize them in a work like this, suffice it to say, they are all beautiful, and deserving of cultivation. The original species was introduced from China in 1731. Syn. *Callistemma*.

Callitha'uma. Derivation not explained. Nat. Ord. *Amaryllidaceæ*.

A small genus of Peruvian bulbs, with yellow flowers, produced on a slender scape before the leaves start, like the Guernsey Lily. They may be grown successfully, with the protection of a frame during winter. Propagated by offsets. Introduced in 1843.

Calli'tris. From *kalos*, beautiful; referring to the appearance of the whole plant. Nat. Ord. *Coniferæ*.

A small genus of evergreen, cypress-like trees, allied to *Thuja*. They are natives of New Holland, Barbary, and the Cape of Good Hope. *C. quadrivalvis* is a large tree with straggling branches. It is a native of Barbary, but can be successfully grown from the Carolinas southward. The resin of this tree is used in varnish-making under the name of Gum Sandarach. It yields a hard, durable, and fragrant timber, of a mahogany color; for which reason it is largely used in the construction of mosques and similar buildings in the north of Africa. Syn. *Frenela*.

Calli'xine. A genus of *Liliaceæ*. Now included with *Luzuriaga*, which see.

Callu'na. Heather. From *kalluno*, to adorn; in reference both to the beauty of the Heather, and to its use as a scrubbing-brush or broom. Nat. Ord. *Ericaceæ*.

C. vulgaris, the only species, is the well-known "Heather" of Scotland, popularly known as Ling or Common Heath; a low-growing, much-branched little shrub, with very pretty rose-colored, purple, or white, fragrant flowers, produced in crowded axillary clusters, forming one-sided (mostly) spikes or racemes. This beautiful little plant has become naturalized in a few localities in this country. It is reported at Tewksbury, Mass., and at Cape Elizabeth, Maine. It is also found sparingly in Nova Scotia and Newfoundland.

Ca'llus. A hardened part. This term is best known as used to denote the cambium that forms at the cut end of a slip or cutting before the roots appear, and heals the wound over. It has a granular or warty appearance, and hence the name.

Calocephalus. From *kalos*, beautiful, and *cephale*, a head; alluding to the inflorescence. Nat. Ord. *Compositæ.*

A genus of cottony or woolly annual or perennial herbs or shrubs, natives of Australia. *C. Brownii*, is the only cultivated species and is much used in carpet bedding and ribbon bordering. It is best known in cultivation as *Leucophyta Brownii.*

Calocho'rtus. Mariposa Lily. From *kalos*, beautiful, and *chortus*, grass; referring to the leaves. Nat Ord. *Liliaceæ.*

This genus contains some of our gayest and most beautiful half-hardy bulbs. They were found in Columbia and California by the intrepid and unfortunate collector, Douglas. The flowers somewhat resemble the Tulip in shape. Colors are white, purple, and yellow, most of them richly spotted. They grow freely in light, sandy loam, should have slight protection in winter, and succeed well grown in pots. They flower from July until September. Propagated by offsets. Introduced in 1826.

Calode'ndron. Derived from *kalos*, beautiful and *dendron*, a tree; in reference to the beauty of the plant. Nat. Ord. *Rutaceæ.*

C. Capense, the only described species, is a tall growing, green-house evergreen tree of an ornamental character. Its stems are pubescent, leaves in opposite pairs, and pubescent on both surfaces. The creamy white flowers, composed of linear oblong petals, are borne in immense terminal panicles. Native of the Cape of Good Hope, first introduced 1789.

Calony'ction. The circumstance of the flowers opening at night has suggested the derivation of the generic name, from *kalos*, beautiful, and *nyx*, night. The plants comprising this genus are again relegated to *Ipomœa* and *Convolvulus.*

Calo'phaca. From *kalos*, beautiful, and *phake*, a lentil; in reference to the lentil-like flowers. Nat. Ord. *Leguminosæ.*

C. Wolgarica, the only described species is a hardy deciduous shrub from Siberia. Its flowers are yellow, produced in axillary clusters, and somewhat resembles the *Cytisus*, an allied plant. Loudon says of it: "Grafted standard high on the common Laburnum, it forms an object at once singular, picturesque and beautiful." It is difficult of propagation except by grafting or from seed.

Calo'phanes. From *kalos*, beautiful, and *phaino*, to appear. Nat. Ord. *Acanthaceæ.*

C. oblongifolia, is a fine hardy herbaceous plant from Florida, bearing lively blue flowers, of little merit as a border plant, as the flowers are too small to be effective. Introduced in 1832.

Calophy'llum. This genus of *Guttiferæ* contains about twenty species mainly natives of the East, only four or five being found in America. They are large trees with shining green leaves, elegantly marked by numerous transverse veins. Some species yield valuable oils, and resins, and the timber of some of the larger sorts is much used for building, masts, etc. Several species are in cultivation for their ornamental foliage.

Calopo'gon. From *kalos*, beautiful, and *pogon*, a beard; the lip being beautifully fringed. Nat. Ord. *Orchidaceæ.*

A small genus of tuberous Orchids, found in swampy situations on the south side of Long Island and many other parts of the United States. The flowers are borne on a scape growing about one foot high; color bright purple, quite conspicuous. Like most of our native Orchids, it improves by cultivation. Shady situations and a light, fibrous soil will suit it.

Calotha'mnus. One of the beautiful genera of *Myrtaceæ*, in which Australia abounds. Shrubby green-house plants, with needle-like leaves and scarlet flowers. The name indicates that the branches become covered with the beautiful flowers. Propagated by cuttings of the firm young wood.

Ca'ltha. Marsh Marigold. Butter Cup. A contraction of *kalathos*, a goblet; referring to the shape of the flower. Nat. Ord. *Ranunculaceæ.*

C. palustris is an indigenous hardy herbaceous perennial, common in swamps and marshy places throughout the Northern States. The flowers are bright yellow, borne in large clusters, in April or May. The leaves are highly esteemed as a pot herb. The plant is frequently called Cowslip, a name that properly belongs to *Primula veris.*

Caltrops Water. The fruit of *Trapa nutans*, which see.

Calycantha'ceæ. A natural order of shrubs with square stems and opposite, entire leaves without stipules, and solitary lurid flowers, which have an aromatic fragrance; natives of North America and Japan. The bark of *Calycanthus floridus*, the Carolina Allspice, is used as a substitute for, and to adulterate cinnamon. There are two known genera, *Calycanthus*, of this country, and *Chimonanthus*, of Japan, comprising six species.

Calyca'nthus. Sweet-scented Shrub, Strawberry Shrub, Carolina Allspice. From *kalyx*, a cup or calyx, and *anthos*, a flower; from the closed cup which contains the pistils. Nat. Ord. *Calycanthaceæ.*

C. floridus is a native deciduous shrub, remarkable for the scent of the flowers (which is commonly thought to resemble that of ripe fruit), as well as for their peculiar color. It is a native of the Southern States, perfectly hardy, and will grow in almost any soil or situation. Propagated by seeds or offsets. The bark of this species is used in the adulteration of cinnamon. There are other species and varieties, but this is the most conspicuous and desirable.

Calyciform. Formed like a calyx.

Caly'pso. Name from *kalypto*, to conceal, not merely to the covering of the stigma, but preserving an analogy between this botanical beauty, so difficult of access, and the secluded goddess, whose isle was fabled to be protected miraculously from the observation of navigators. Nat. Ord. *Orchidaceæ.*

C. borealis, the only species, is one of the most beautiful of our native Orchids. It is a tuberous plant with one leaf and one flower only. The flower is rose-colored and has something of the appearance of a *Cypripedium*, owing to its forming a large pouch, which is woolly-hairy inside. It is found in cold bogs and wet woods in northern New England, west and northwards, its bulbs resting in

moss; the flowers appear as soon as the snow melts in spring.

Calyste'gia. Bracted Bindweed. From *kalyx*, a calyx, and *stega*, a covering; in reference to the calyx being hid by two bracts, as is the case with a section of *Bindweeds*. Nat. Ord. *Convolvulaceæ*.

This somewhat extensive genus includes our common hedge Convolvulus, but only a few species are considered interesting. *C. pubescens*, from China, a hardy double-flowered variety, is useful as a screen, or for covering unsightly places, the chief objection to it being its tendency to get beyond control. Propagated by division of root in spring.

Calyx. The most external of the floral envelopes; it is called adherent or superior when it is not separate from the ovary; free or inferior when it is separate from that part; and calyculate when it is surrounded at the base by bracts in a ring.

Camaro'tis. From *camara*, an arched roof; in reference to the form of the lip or labellum. Nat. Ord. *Orchidaceæ*.

A small genus of East Indian and Brazilian Orchids, bearing pale rose flowers, with yellow lip, produced on pendulous racemes in March and April. They require a warm, moist house, and need but little rest. They are increased by division. Introduced in 1818. Syn. *Sarcochilus*.

Cama'ssia. Wild Hyacinth. From *quamash*, so called by Indians, who eat the bulbs. Nat. Ord. *Liliaceæ*.

Allied to the Scilla or Squill. *C. esculenta* resembles the common blue Hyacinth, but is larger, its leaves being about a foot long, very narrow, and grooved down the inside. Its flower stalks grow from one to two feet high, and bear large, showy purple flowers. This plant grows in moist grounds from the Mississippi River to the Pacific Ocean, and its bulbs form a staple food of the Indians, the different tribes visiting the plains for the purpose of collecting them, immediately after the plant has flowered. The occasion is one of their feasts, in which the women take an important part, as the labor of digging devolves entirely upon them. The unmarried females endeavor to excel each other in the quantity they collect, their fame as future good wives depending upon their activity upon the *Quamash* plains. The roots are cooked by digging a hole in the ground and paving it with large stones, upon which a fire is lighted and kept up until they are red hot, when they are covered with alternate layers of branches and roots till the hole is full. It is then covered with earth, and a fire kept burning upon it for twenty-four hours, when the roots are taken out, dried, or pounded into cakes for future use.

Cambium. The viscid fluid which appears between the bark and wood of Exogens, when the new wood is forming.

Came'llia. Named in honor of *George Joseph Kamel*, or *Camellus*, a Moravian Jesuit and Eastern traveler. Nat. Ord. *Ternstræmiaceæ*.

This well-known genus is so closely allied to the tea family as to be distinguished from it with great difficulty, the great difference being in the number of parts and position of the flower. The number of true species of this splendid genus is very limited, not exceeding six or seven, and only one or two of them are thought worth cultivation, except for botanical purposes. The hundreds of beautiful varieties which grace our collections, possessing at once the most rich and vivid colors in their flowers, and the noblest grandeur in the whole aspect of the plants, fully compensate for this scarcity of species, and leave us little to desire that may not reasonably be expected from the same skill and perseverance which have already produced such splendid results. *C. Japonica* may be regarded as the parent of the whole race of cultivated Camellias. It is a native of China and Japan, where it attains the altitude of a tree, and is much employed by the natives of those countries in decorating their gardens. Camellias delight in an even temperature, rapid fluctuation being injurious at any season, and the same regular and equable amount of both light and moisture should prevail for the whole year, that in effect the difference between the summer and winter seasons may be lessened as far as practicable. For this purpose the plant should be kept in summer in a cool green-house, moderately shaded from the sun. When the plants are in a growing state they require abundance of water, both at the roots and over the leaves. After making their growth, and setting their flower-buds, they require less attention than at any other period. Moderate supplies of water and a situation as cool as can be afforded without danger of frost or nipping currents of air are best. About the middle of March is the commencement of the ordinary growing season, when a higher temperature and plenty of water to the roots should be given them. Potting should be done when the greatest benefit will be conferred on the prospective shoots, which will be before the roots have made much progress, or as soon after blooming as may be. A distinction in the quality of soil to be used should be made in accordance with the state of each plant, bearing in mind that they grow much stronger in loam, but do not usually produce flowers so freely, and *vice versa* for healthy specimens; and under ordinary circumstances an addition of leaf mould seems most advisable, introducing a small proportion of sand, and using the soil quite rough. At this time it should be determined at what period the plants will be required to bloom in the ensuing season, whether early or late, to accord with which the plants may be either forced or retarded. They will bear almost any amount of heat while growing, but after the formation of the flower-buds it must be withheld, as the slightest application then, instead of hastening their development, will infallibly cause them to fall off. Hence, the only way to "force" Camellias into early flowering in fall and winter is to keep them at a high temperature while growing in spring. A temperature of about 65° is the most proper for such as are desired to flower in the following winter; 45° or 50° will be sufficient for the next, or those which may be said to bloom naturally, while the portion required to furnish flowers for the late spring months should be placed out of doors. This treatment must be continued until the new growths are completed, and the incipient flower-buds can be discovered, when a cool, shaded situation

should be provided for each section as they require it; observing to supply them bountifully with water during the whole period of growth, with an occasional sprinkling over the foliage, and moderate shade. Any situation secure from frost will preserve them through the winter, and as the flowers expand, the plants may be removed wherever their presence may be deemed most ornamental. Many of the best Camellias in cultivation have been raised from seed in this country; several of the finest of which have originated in Boston, with Messrs. M. P. Wilder and C. H. Hovey, and have been awarded the highest honors. The usual mode of propagation is by cuttings, or by grafting or inarching, either of which should be done as soon as the new wood is firm enough to handle. The subjects operated on should be placed in a close, humid atmospnere, such as is afforded by a common hand-glass placed over a tan-bark bed. The union takes place in a few weeks, and with encouragement, the scions will form fine plants in one season. The Tea Plant, known generally as *Thea Bohea* or *Thea viridis*, is now returned by many botanists to this genus under the name of *C. theifera*.

Camoe'nsia. Named in honor of Louis Camoens, a celebrated Portuguese poet. Nat. Ord. *Leguminosæ*.

C. maxima, the only species yet in cultivation, was introduced from Angola in 1878, and is the largest-flowered leguminous plant known. It is one of the most beautiful of tropical climbers. The splendid bunches of pendulous milk-white flowers, tinged with gold on the edges of the petals, grow in drooping racemes from the axils of the leaves; the petals are white, venose, frilled at the margin, where they are tinted with golden-yellow. Propagated by cuttings.

Campa'nula. Bell Flower. The diminutive of *campana*, a bell; literally, a little bell. Nat. Ord. *Campanulaceæ*.

This extensive and well-known genus consists of more than two hundred species, including annuals, biennials, and perennials. Some of the hardy perennials are dwarf plants, producing a profusion of flowers, which render them particularly adapted for rock-work or for growing in pots. *C. pyramidalis* is a tall-growing variety, at one time a very popular plant, and some of the old gardeners still cling to it with a peculiar fondness. When grown in pots it requires frequent repotting, which will bring it to an enormous size. When well grown it is a splendid plant. *C. medium* (Canterbury Bell) is a very ornamental garden flower of the easiest culture, with double and single varieties, bearing blue, red, purple, and white flowers. Like other biennials, it may either be sown where it is to remain, any time after midsummer, or may be sown in beds in spring for transplanting. *C. rotundifolia* (Hairbell) is the most beautiful of our native species. Some of the species are grown in France and Italy as esculent roots. All succeed well in any good soil, and are propagated freely by seeds or division.

Campa'nula'ceæ. A natural order of milky herbs or undershrubs, with alternate leaves, having no stipules, and usually bearing showy blue or white flowers. The plants are chiefly natives of the north of Asia, Europe, and North America, and are scarcely known in hot regions. The chains of the Alps, Italy, Greece, the Caucasus, and the Altai, are their true homes. Several are found at the Cape of Good Hope. The plants have a milky, acrid juice, but the roots and young shoots are often cultivated as articles of food, as, for example, the Rampion (*Campanula Rapunculus*). There are twenty-nine known genera, and 540 species. Some of them furnish handsome flowers for the border. *Jasione*, *Phyteuma*, *Campanula*, *Adonophora*, and *Platycodon* are examples of the order.

Campa'nulate. Bell-shaped, as the corolla of *Campanula*.

Campeachy Wood. The red dye-wood, better known as Logwood, obtained from *Hæmatoxylon Campechianum*.

Camphire, or Samphire. *Crithmum maritimum*.

Camphor. See *Camphora*.

Ca'mphora. Camphor-tree. From *Camphor*, the commercial name of its chief product. Nat. Ord. *Lauraceæ*.

C. officinalis, the only species constituting this genus, is an evergreen tree that grows to a considerable height, dividing into many branches covered with smooth, greenish bark. Its flowers are small, white, destitute of calyx, with a six-petalled corolla. The fruit resembles that of the cinnamon.

This tree is a native of China and Japan, growing abundantly in the woods of the western part of the island. The roots, wood and leaves have a strong odor of camphor. This substance is found to lodge everywhere in the interstices of the fibres of the wood, also in the pith, but most abundantly in the crevices and knots. The camphor of commerce, or Chinese camphor, is obtained from the wood, branches and leaves, by dry distillation. It is chiefly produced in the island of Formosa, and is brought in great quantities to Canton, whence foreign countries are supplied.

Campion. Moss. *Silene acaulis*.
Rose. *Lychnis coronaria*, and *L. Flos Jovis*.

Campsi'dium. From *Kampsis*, a curving. Nat. Ord. *Bignoniaceæ*.

C. filicifolium is a beautiful climber from Chili. The foliage is of a dark shining green color, and resembles the fronds of some Ferns. The flowers are small, of a rich orange color. It is a rapid grower, well adapted for covering rafters or back walls in the green-house. In the woods, in its wild state, it grows forty to fifty feet high, covering the tops of the trees in a most graceful manner.

Camptoso'rus. Walking Fern. The rather rare or local *C. rhizophyllus*, is the only native representative of the genus, and is remarkable for its fronds, tapering above into a slender prolongation like a runner, which often roots at the apex, and gives rise to new fronds, and these in turn to others; hence the popular name. Syn. *Asplenium*.

Campylobo'trys. From *kampylos*, a curve, and *botrys*, a bunch; alluding to the form of the inflorescence. Nat. Ord. *Cinchonaceæ*.

A genus of very beautiful green-house shrubs, natives of Brazil. They are more remarkable for their glossy foliage than for

CAMPSIDIUM.

CAMPANULA CARPATICA.

CAMPANULA SPECULUM.

CAMPANULA (TALL).

CAMPANULA PUNCTATA.

CAMASSIA ESCULENTA.

CANNA INDICA (DWARF).

CAMPANULA MEDIA.

CARDIOSPERMUM.

CASTILLEJA INDIVISA.

CHAMÆROPS EXCELSA.

CATALPA.

CAPSICUM VAR.

the beauty of the flowers. *C. regalis* has elliptic leaves, with a satiny luster and a rich bronzy-green color. This, with one or two other species, has been introduced into the green-house for the rare beauty of the foliage. They were introduced in 1859, and are propagated by cuttings. By some authors this genus is placed under *Hoffmannia*.

Camwood. See *Baphia*.

Canada Balsam. *Abies Balsamea*.

Canada Rice. *Zizania aquatica*.

Canada Tea. *Gaultheria procumbens*.

Canada Thistle. See *Cirsium*.

Canary Bird Flower. See *Tropæolum*.

Canary Grass. See *Phalaris*.

Canava'lia. A genus of elegant twining plants of the Nat. Ord. *Leguminosæ*.

The purple or white and red flowers are produced in racemes from the axils of the trifoliate leaves. Well adapted for training up the rafters of a stove or warm green-house.

Cancer Root. A common name applied to the genus *Epiphegus*, and also to *Conopholis*, on acconnt of their supposed medicinal virtues.

Cancer Root. One-Flowered. *Aphyllon uniflorum*.

Cancer-wort. *Linaria spuria*, and *L. Elatine*.

Candidus. A pure white; but not so clear as snow-white.

Candle-berry Myrtle. *Myrica cerifera*, and *M. Gale*.

Candle-berry Tree. *Aleurites triloba*.

Candle Tree. Panama. See *Parmentiera cerifera*.

Candle Wood. Californian. *Fouquiera splendens*.

Cando'llea. Named for *A. De Candolle*, of Geneva, author of many botanical works. Nat. Ord. *Dilleniaceæ*.

A genus of very ornamental evergreen shrubs, natives of Australia. *C. tetrandra* is a very compact-growing and free-flowering plant with yellow flowers, borne at the ends of the branches. Introduced in 1842. It is a valuable addition to our fall and winter blooming plants. Propagated by cuttings, or by seeds when obtainable.

Candy-tuft. See *Iberis*.

Cane-brake. A common name for different species of *Arundinaria*.

Cane. Dumb. *Dieffenbachia seguine*, which see.
Chair-bottom. Various species of *Calamus*, which see.
Malacca. *Calamus scipionum*.
Rattan. *Calamus draco* (*C. Rotang*).
Sugar. *Saccharum officinarum*.
Sugar, Chinese. *Sorghum Saccharatum*.

Cane Stakes. The tree-like culms or stems of two species of *Arundinaria*, found in swamps and by the margins of rivers from Florida to Indiana. They are much used, especially by florists, for plant stakes, as they can be cut to any desired length, and are ready for use at once. Those from Indiana are considered the best, as they are tougher and more durable.

Canescens. More or less gray, verging on white; grayish-white; hoary; a term applied to hairy surfaces.

Canker. A rather indefinite term, used to denote a disease resulting in the slow decay of trees or other plants attacked by it. See *Carcinodes*.

Ca'nna. Indian Shot. The Celtic name for a *cane* or reed. Nat. Ord. *Scitamineæ*.

This is an extensive and very interesting genus of tender herbaceous perennials. Most of the species have showy crimson, orange and yellow flowers. They are usually grown for the remarkable beauty of their foliage, which is highly ornamental; hence they are favorite plants in cultivation, and produce a striking effect either singly, or grouped in beds upon the lawn in the summer months. If planted in a rich, deep soil, and freely watered, some of them will grow ten feet during the season, and from a single tuber make a clump three or four feet in diameter. A new section, introduced in 1884 by a Mr. Crozet of France, has a dwarf bushy habit. The flowers are produced in abundance from June to October when they can be lifted and flowered during winter in green-houses. This section comprises many grand varieties, the flowers of many of which are marked like orchids. Beauty is not their only claim to consideration, some of the species, as *C. edulis*, being grown extensively in Peru and the Sandwich Islands as a vegetable. Arrow-root is also made from this species. Propagated by seeds or more commonly by division of tubers, which should be kept during the winter like Dahlias.

Ca'nnabis. Hemp. So called from *ganeh*, its Arabic name, and from the Celtic appellation *can*, reed, and *ab*, small. Nat. Ord. *Urticaceæ*.

Of the two species that compose this genus, the truly important one is *C. sativa*, a native of India, which furnishes the Hemp of commerce. The Hemp plant is an annual, growing from four to eight feet high; in very hot climates it frequently grows twenty feet high. The flowers are of separate sexes on different plants, the males being produced in racemes, and generally crowded together towards the top of the plant or end of the branches; the females are in short spikes, their calyx consisting merely of a single sepal, rolled around the ovary, but open on one side, and they have two hairy stigmas. The fruit (commonly known as "Hemp-seed") is a small, grayish-colored smooth, shining nut, containing a single oily seed. For the production of good fiber the seed is sown close, so as to produce straight stems without branches. The harvesting takes place at two periods; the male being pulled as soon as it has done flowering, and the female not until the seeds are ripe. After gathering it undergoes treatment similar to that given flax to separate the fiber. In Persia and other very hot countries the plant furnishes a soft resin, which is collected by the coolies, and is smoked like tobacco, or pounded into pulp, so as to make a drink, both being stimulant and intoxicating. The Asiatics are passionately addicted to the use of this means of intoxication, as the names given to the Hemp show: "leaf of delusion," "increaser of pleasure," etc.

Canoe-Wood. The Tulip tree. *Liriodendron tulipifera*.

Canterbury Bells. See *Campanula medium*.

Ca'ntua. From *Cantu*, the name of one of the species in Peru. Nat. Ord. *Polemoniaceæ*.

A genus of green-house evergreen shrubs from Peru. The foliage is fleshy, the flowers large and showy, produced in terminal corymbs, the colors being white, scarlet, yellow and blue. They require the same treatment as the Fuchsia. *C. buxifolia* is the Magic Tree of the Peruvian Indians, and was formerly used to decorate their houses on feast days. All the species are readily increased by cuttings, *C. coronopifolia*, a native of South Carolina, is *Gilia coronopifolia* of Ruiz and Pavon.

Caoutchouc. The elastic, gummy substance known as Indian Rubber, which is the juice of various plants growing in tropical climates in different parts of the world. It is chiefly obtained from the *Ficus elastica*, *Castilloa elastica*, *Urceola elastica*, etc. The milky juice of *Siphocampylos caoutchouc* is quite different from the Caoutchouc of commerce.

Cape Bulbs. A term employed to designate a large number of bulbs from the Cape of Good Hope, that require the protection of a frame to be grown in this latitude. They are not sufficiently hardy to endure our winters without protection. Among the class may be found *Ixias*, *Babianas*, *Sparaxis*, *Tritonias*, *Geissorhiza*, etc.

Cape Figwort. See *Phygelius*.

Cape Gooseberry. *Physalis Peruviana.*

Cape Jessamine. See *Gardenia florida.*

Cape Poison Bulb. *Buphane disticha* (Syn. *Brunsvigia toxicaria*).

Cape Pond Weed. *Aponogeton distachyon.*

Cape Treasure Flower. *Gazania pavonia.*

Caper tree. See *Capparis.*

Capitate. Having a head; pin-headed, as the stigma of the Primrose. Also, growing in a head, or close terminal clusters, as the flowers of *Compositæ*, etc.

Capparida'ceæ. A natural order composed of herbs, shrubs, or trees with alternate leaves and solitary or clustered flowers. The order is divided into two sub-orders: *Cleomeæ*, with dry, dehiscent (splitting) fruit, and *Capparеæ*, with a berry fruit. The plants are chiefly tropical, and abound in Africa and India. Some are found in Europe and in North America. They have pungent and stimulant qualities, and have been used for scurvy. The flower buds of *Capparis spinosa* furnish the well-known Capers. *C. Ægyptiaca* is thought by some to be the Hyssop of Scripture. There are thirty-three known genera and 375 species. *Capparis*, *Cleome*, *Polanisia*, and *Cratæva*, are examples of the genera.

Ca'pparis. Caper-tree. From *kabar*, the Arabic name for Capers. Nat. Ord. *Capparidaceæ.*

An extensive genus of tender or half-hardy climbing or trailing plants. The best known of the species is *C. spinosa*, a native of the south of Europe. In habit it resembles the common bramble. The Capers are the buds, which are gathered just before expanding, and pickled. In Italy the unripe fruit is sometimes pickled in vinegar in the same manner as the buds. Capers are chiefly imported from Sicily, though they are extensively grown in the south of France.

Caprifolia'ceæ. A natural order of shrubs or herbs, often twining, natives of the northern parts of Europe, Asia and America, found sparingly in northern Africa, and unknown in the southern hemisphere. Some are astringent, and others have emetic and purgative qualities. Many have showy and fragrant flowers. The common Honeysuckle (*Lonicera*) is one of the most esteemed of our climbing or twining plants. Among other plants of the order may be mentioned the Snowball or Guelder Rose (*Viburnum opulus*), the Snowberry (*Symphoricarpus racemosus*), the Elder (*Sambucus nigra*), and the Laurustinus (*Viburnum Tinus*), as well as *Linnæa borealis*. The black berries of the species of *Viburnum* found on the Himalaya Mountains are eatable and agreeable.

Capse'lla. A common weed belonging to Nat. Ord. *Cruciferæ.*

C. Bursa-pastoris, Shepherd's Purse, a native of Europe, is so called from the resemblance of its pods to some ancient form of purse. It has accompanied Europeans in all their migrations, and established itself wherever they have settled. It is a troublesome weed, hence its utilitarian popular name, "Pickpocket," is more appropriate perhaps, than the sentimental one "Shepherd's Purse."

Ca'psicum. Chili Pepper. From *kapto*, to bite; referring to its pungency. Nat. Ord. *Solanaceæ.*

An extensive genus of tender annual and biennial plants, natives of the East and West Indies, China, Brazil and Egypt. *C. annuum* is the common garden pepper, a native of India, from which many varieties have originated. *C. frutescens*, a native of Chili, is the species that furnishes the Cayenne Pepper of commerce, and is also used in the preparation known as *Pepper Sauce*. *C. grossum*, a native of India, is the Bell Pepper of our gardens.

Capsule. A dry dehiscent seed vessel or fruit.

Caraga'na. Siberian Pea-tree. So called from *Carachana*, its name in Tartary. Nat. Ord. *Leguminosæ.*

An Asiatic genus of shrubs or low growing trees. One of the best known of the species is, *C. Arborescens*, the Siberian Pea-tree, a low sized shrubby tree, with numerous yellow, tapering twigs, and very small, pinnate leaves of the same character as those of the Acacias, but much smaller and of a rare golden-green color; the flowers are small, yellow, and produced singly or in clusters, at the axils of the leaves. It is a tree of marked beauty in early summer, by the contrast it presents with shrubs of dark and less delicate foliage. *C. Chamlagu*, a Chinese species, is a low spreading shrub, two to four feet high, with branches at first upright and then decumbent. Loudon says: "When grafted on *C. arborescens*, it forms a singularly picturesque pendulous tree; beautiful not only when it is in leaf or in flower, but from the graceful lines formed by its branches, even in the midst of winter, when they are completely stripped of their leaves." The flowers are produced freely in large clusters, yellow or reddish, in May or June.

Carageen or Carrageen. Irish Moss. A name given in Ireland to *Chondrus crispus* and some other allied *Algæ*. Vast quantities are col-

[illegible]

Cayenne. See Cayenne.

Cayenne. [illegible] Cayenne.

Cayenne. [illegible] Cayenne.

Cayenne. [illegible]

Carneus. Pale red, or flesh-color.

Carnivorous Plants. A term applied to *Dionæa muscipula, Darlingtonia Californica,* the *Droseras,* and other insect-catching plants, on the supposition that they feed on the insects which they entrap.

Carob Tree. See *Ceratonia.*

Carolina Allspice. A popular name of the *Calycanthus,* or Sweet-scented Shrub.

Carolina Jasmine. See *Gelsemium.*

Carpel. A division of the ovary; one of the rolled-up leaves of which the pistil is composed, whether they are combined or distinct; the small parts of which compound fruits are formed.

Carpente'ria. Named after the late *Professor Carpenter* of Louisiana. Nat. Ord. *Saxifragaceæ.*

An ornamental, hardy, tall-growing shrub with pure white flowers, and broadly-lanceolate pinnately-veined leaves, whitened beneath, with a minute and close pubescence. Introduced to cultivation from the Sierra Nevadas, California, in 1880.

Carpi'nus. Hornbeam, Iron Wood. From the Celtic *car,* wood, and *pinda,* head; the wood being used for the yokes of cattle. Nat. Ord. *Corylaceæ.*

C. Americana, the only representative of this genus in our woods, is a low-growing tree of compact form, and a very rigid trunk. It is particularly handsome in autumn, because of its richly-colored foliage. It is found in nearly all parts of the country, but is not plentiful in any section. The wood of this tree is exceedingly hard and close-grained, and is well suited for any work requiring great hardness and strength.

Carpoly'za. From *karpos,* fruit, and *lyssa,* rage; in reference to the three-celled fruit, or seed-pod, opening like the mouth of an enraged animal. Nat. Ord. *Amaryllidaceæ.*

A genus of South African bulbs, the only species being *C. spiralis,* which is a very pretty little plant. The leaves and flower scape are twisted, from which fact it derives its specific name. The flowers are white, sepals pink, tipped with green. It requires protection in winter, or may be kept dry and grown in pots, starting them about the first of February. They are propagated by offsets. Introduced in 1791.

Carrion Flower. *Coprosmanthus herbaceus, Smilax herbacea,* and the genus *Stapelia.*

Carrot. *Daucus carota.* The wild Carrot, indigenous to Great Britain and many other parts of Europe, and so extensively naturalized in this country as to become one of the most troublesome pests of the farmer, has generally been supposed to be the parent of the many varieties of the common garden Carrot, which has been under cultivation from time immemorial. Dioscorides describes accurately the Carrot, both as a wild plant and as cultivated as an esculent root. The parentage was not questioned until Miller, the celebrated English gardener and botanist, undertook to improve the wild Carrot by cultivation, and signally failed in his many and varied attempts. Others have experimented at different times, with no better success. The prevailing opinion now is that the garden

Carrot is a distinct species, or was obtained under circumstances entirely different or unknown at the present day. The carrot was introduced into England, in about its present form, by the Dutch, during the reign of Queen Elizabeth, and soon thereafter became a favorite vegetable, and a useful as well as a profitable field crop. Careful selection has gradually improved the quality in certain respects, of the Carrot, during the past hundred years, and good cultivation is now required to keep the varieties up to their proper standard.

Cartha'mus. Safflower. From *quartom,* to paint, in Arabic; the flowers yield a fine color. Nat. Ord. *Compositæ.*

This genus consists of two species only, annual plants, found in Caucasus and Egypt. *C. tinctorius,* the Saffron Thistle, is extensively cultivated in India, China, and other parts of Asia, for the coloring matter which its flowers yield. These flowers contain two kinds of coloring matter—the one yellow, which is soluble in water, the other red, which being of a resinous nature, is insoluable in water, but is soluble in alkaline carbonates. The fruit is never converted to any use, as it dyes only dull shades of color; the other is a beautiful rose-red, capable of dyeing every shade, from the palest rose to a cherry-red. It is chiefly used for dyeing silk, affording various shades of pink, rose crimson and scarlet. Mixed with finely-powdered talc it forms the well-known substance called rouge. In France this species is grown for the beauty of its flowers, and in Spain it is grown in gardens to color soups, olives and other dishes. It is readily grown from seed, which should be started in the hot-bed or greenhouse.

Ca'rum. Caraway. From *Caria,* in Asia Minor, where it was first discovered. Nat. Ord. *Umbelliferæ.*

A small genus of hardy biennials, but one species of which, *C. Carui,* is of any special interest. This is a native of Europe, and produces the Caraway seeds which contain an aromatic volatile oil, and are used in flavoring. The plants are of the simplest culture, requiring only to sow the seeds where the plants are wanted to grow.

Ca'rya. Hickory. The Greek name for the Walnut. Nat. Ord. *Juglandaceæ.*

A well-known genus of hardy deciduous trees, confined wholly to North America. *C. alba* is the common Shell-bark or Shag-bark Hickory, so called on account of the rough, shaggy bark of the trees, peeling off in long, narrow strips from large trees. This species furnishes the best Hickory nuts. *C. olivæformis* is the Pecan-nut tree, common from Illinois southward. It is a large and beautiful tree. Its delicious nuts are well-known. *C. porcina* is the Pig-nut, one of the most valuable as a timber tree, but the fruit is worthless. *C. amara* is the Bitter-nut or Swamp Hickory-nut. *C. sulcata* is the Western Shell-bark Hickory, remarkable for the size of the nut which has a very thick shell, but is of excellent quality. *C. tomentosa,* common in the West and South, bears the largest nuts of any of the species, the size, however, being at the expense of the quality. The timber of all the species is valuable for any purpose where strength and elasticity are required.

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Caryoph'yllaceæ. An extensive order of herbs, with stems swollen at the joints, the flowers terminal, solitary, or disposed in racemes, panicles or corymbs; the leaves entire and opposite. The plants of this order are natives principally of temperate and cold regions. They inhabit mountains, rocks, hedges and waste places. Humboldt says that Cloveworts constitute a twenty-secondth part of the flowering plants of France, one twenty-seventh of those of Germany, one seventeenth of Lapland, and one seventy-secondth of North America. There are some very showy flowers in the order, such as the well-known and popular Pinks and Carnations; but the greater number are mere weeds. The Clove Pink (*Dianthus Caryophyllus*) is the origin of all the cultivated varieties of Carnations, as Picotees, Bizarres and Flakes. The common Chickweed (*Stellaria media*) and Spurry (*Spergula arvensis*), the latter used as fodder for sheep, are other examples. There are about sixty genera and 1,100 species. *Dianthus*, *Silene*, *Lychnis*, *Cerastium*, *Arenaria*, *Alsine*, *Saponaria*, are examples of this order.

Caryophy'llus. Clove-tree. From *karuon*, a nut, and *phyllon*, a leaf; referring to the appearance of the flower-buds. Nat. Ord. *Myrtaceæ*.

C. aromaticus, the tree producing the well-known spice called Cloves, is a handsome evergreen, rising from fifteen to thirty feet, with large elliptic leaves and purplish flowers, arranged in terminal heads on short-jointed stalks. It is a native of the Molucca Islands, where it is not only cultivated for its great commercial value, but also as an ornamental tree. The whole tree is highly aromatic, and the foot-stalks of the leaves have nearly the same pungency as the calyxes of the flowers. A celebrated writer who had visited the islands, says: "Clove-trees as an avenue to a residence are perhaps unrivalled—their noble height, the beauty of their form, the luxuriance of their foliage, and, above all, the spicy fragrance with which they perfume the air, produce, on driving through a long line of them, a degree of exquisite pleasure only to be enjoyed in the clear, light atmosphere of those latitudes."

Caryo'pteris. From *karuon*, a nut, and *pteron*, a wing; the fruit is winged. Nat. Ord. *Verbenaceæ*.

C. Mastacanthus, the best known species, is a hardy herbaceous plant, of easy culture, blooming in autumn. The flowers are light azure-blue in color, and are borne in axillary globose heads. It grows about two feet high, and was introduced from China in 1844.

Caryo'ta. Toddy Palm. The old Greek name used by Dioscorides; the Greeks first applied this name to their cultivated Date. Nat. Ord. *Palmaceæ*.

C. urens, commonly called Fish-tail Palm, is the most prominent species of this genus. It is a beautiful tree, growing from sixty to eighty feet high, with a trunk a foot in diameter, producing many pendulous spikes of flowers, which are succeeded by strings of succulent globular berries, dark red when ripe, and are very sharp and acrid in taste. In Ceylon it yields a sort of liquor, sweet, wholesome, and no stronger than water. It is taken from the tree two or three times a day, each

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yield from a large tree being from three to four gallons. When boiled down it makes a coarse brown sugar called jaggory. When the tree has come to maturity there comes out a bud from the top; that bud the natives cut and prepare by putting salt, pepper, lemons, garlic, leaves, etc., over it, which keeps it from ripening. They daily cut off a thin slice from the end, and the liquor drops into a vessel, which they set to catch it. The buds are most delicious to the taste, resembling walnuts or almonds. The species are natives of the Indies, and are grown in the green-house, where they succeed well with the same treatment which other tropical Palms require.

Cascari'lla Bark. See *Croton*.

Cashew-Nut. See *Anacardium*.

Cassa'ndra. Leather-leaf. *C. Calyculata*, the only known species, sometimes included under *Andromeda*, is generally distributed throughout the northern hemisphere. It is a low, much-branched shrub belonging to the Nat. Ord. *Ericaceæ*, and produces its pretty white flowers on one-sided racemes, early in spring.

Cassava Bread, or Cassava Meal. See *Manihot utilissima*.

Ca'ssia. Senna. From the Greek name of a plant, *Kassian*, of the Bible. Nat. Ord. *Leguminosæ*.

An extensive genus of hardy herbaceous and green-house perennials, found scattered over nearly all parts of the globe. Many of the species are well known, and considered of great importance for their medicinal properties. The leaflets of several of the species constitute what is known in medicine as Senna leaves. Those from *C. acutifolia* and *C. obovata*, African and East Indian species, are the most highly esteemed. The leaves of *C. Marilandica*, wild Senna, a native of the Middle and Southern States, have, to some extent, the same properties, and are sometimes used as a substitute for the officinal Senna. This species may be justly regarded as one of our most valued plants for the border. It grows from three to four feet high; foliage a beautiful deep green, not unlike the finer Acacias; flowers bright yellow, produced in short axillary racemes, continuing a long time in succession. Some of the roadsides of Long Island are bordered with this plant, and no public park, with all that art can bestow upon its drives in the way of ornamentation, can compare in simplicity and beauty with these roadsides. *C. nictitans*, Wild Sensitive Plant, another native species, is a very beautiful hardy annual, common on our roadsides, growing about six inches high, and in appearance almost identical with the Sensitive Plant, *Mimosa pudica*, and well worth cultivating for its beautiful foliage. *C. chamæcrista*, commonly known as Partridge Pea, is a very pretty species, common in the Southern States.

Cassi'nia. Named after *M. Henri Cassini*, an eminent French botanist. Nat. Ord. *Compositæ*.

A very handsome genus of shrubby plants or herbaceous perennials, natives of Australia and New Zealand. *C. Vauviliersii* produces numerous small white flowers in compact

clusters, which though pretty, are not enough to recommend the plant for general culture; but its golden coat which suffuses the back of the leaves, and still more densely the entire young stems, will always make it an object of interest. It is perfectly hardy, and is readily increased by cuttings.

Casta'nea. Chestnut. From a town of that name in Thessaly. Nat. Ord. *Corylaceæ*.

The Chestnut Tree is well known because of the nuts, which are universally esteemed. There are two species indigenous to this country, the common Chestnut, *C. vesca*, found throughout the States, and *C. pumila*, a low-growing tree or shrub, common southward, which produces a smaller nut, known as the Chinquapin. The Spanish Chestnut, a variety of *C. vesca*, differing from our native Chestnut mainly in the size of the fruit, is a native of Asia Minor, introduced at a very early date. This tree grows to an immense size. A tree near Queens, L. I., planted nearly one hundred years ago, has a trunk almost twelve feet in circumference, and is about fifty feet high, with immense spreading branches. It is one of the noblest shade trees to be found in this country. A species of late introduction from Japan promises to become one of our most useful as well as most ornamental trees, or, more properly, tall shrubs. The fruit of this species was received in New York a few years since in a consignment of goods from Japan. The merchant receiving the same, seeing the nuts were of such excellent quality, fully equal to those of our native species, and as large as the Spanish Chestnut, attempted the growing of them, and with remarkable success. In five years they commenced to fruit, and are now bearing profusely. The shrub is of an ornamental character, suitable for the lawn. The fruit or nuts are borne within two feet of the ground. Those who have had a favorable opportunity to judge of its character, predict its early adoption as a hedge plant, for which purpose it seems well adapted. In addition to its value as an ornamental hedge, it would undoubtedly prove valuable for its yield of nuts.

Castille'ja. Painted-Cup. Named in honor of *Don Castilleja*, a Spanish botanist. Nat. Ord. *Scrophulariaceæ*.

This genus consists of about forty species, nearly all of which are American, a few being found in northern Asia. They are remarkable for their brightly colored floral leaves or bracts, the most of which are more showy than the flowers, which are commonly yellowish or greenish. *C. indivisa*, a beautiful perennial species, has recently been introduced into our gardens from Europe, although it is a native of Colorado. It is one of our most desirable hardy plants, producing its brilliant scarlet bracts in great profusion. This species is so entirely distinct from most other plants, and at the same time so showy, and can be grown with as little difficulty as most other herbaceous plants, that we cannot but consider it a great acquisition.

Castillo'a. A Mexican tree belonging to the Nat. Ord. *Urticaceæ*, and having male and female flowers alternating one with the other, on the same branch. *C. elastica*, contains a milky juice yielding Caoutchouc.

Castor Oil Bean. See *Ricinus*.

Casuari'na. Beef-wood. Supposed to be named from the resemblance the leaves bear to the feathers of the *Cassowary*. Nat. Ord. *Casuarinaceæ*.

A genus of very curious trees, constituting of themselves a distinct family. They have very much the appearance of gigantic Horsetails (*Equisetaceæ*), being trees with thread-like, jointed, furrowed branches, without leaves. The flowers are not of a showy character. These plants are met most abundantly in tropical Australia, and occasionally in the Indian Islands, New Caledonia, etc. In Australia, from their somber appearance, they are planted in cemeteries. The timber furnished by these trees is valuable for its extreme hardness and its red color, it is called in the islands Beef-wood. The several species are highly esteemed for their uses in the mechanic and useful arts. A few of them have been introduced into green-houses for their singular appearance.

Cata'lpa. Indian Bean. Cigar Tree. The Indian name of the first discovered species. Nat. Ord. *Bignoniaceæ*.

A small genus of ornamental trees, natives of North America, the West Indies, Japan and China. *C. bignonioides* (syn. *Syringæfolia*), a native of the Southern States, and one of the most beautiful shade trees, has bright, yellowish-green, heart-shaped leaves, and is remarkable for its numerous loose panicles of white flowers, spotted with orange and purple. *C. b. aurea*, a golden-leaved variety, is slower growing than the parent and is golden over the entire leaf on the young growths in June, and the second growth in August and September. *C. speciosa*, the Western Catalpa, cultivated and now widely naturalized in southern Arkansas, western Louisiana, and eastern Texas, has white flowers, in rather large panicles and in general appearance is similar to *C. bignonioides*, but may be easily distinguished from that species by its much larger flower, fruit, and seed. *C. Bungeii*, generally known as *C. Kæmpferi*, is probably a small form of *C. bignonioides*, and is a remarkable shrub, growing from six to eight feet high, with a diameter from eight to ten feet. The trees when young make a rapid growth, and are particularly valuable for lawn or street decoration, being, so far, entirely exempt from the ravages of insects and caterpillars.

Catana'nche. From *katanangke*, a strong incentive; in reference to an ancient custom among the Greek women of using it in love potions. Nat. Ord. *Compositæ*.

A small genus of annuals and hardy herbaceous perennials. *C. cærulea*, a perennial species, with slender stalks, long, narrow leaves, and large heads of sky-blue flowers, is a native of the south of Europe. From this species several varieties have been produced with white and double flowers, all very desirable for the open border and for cuttings. They are increased by division or from seeds. *C. lutea*, an annual species with yellow flowers, is a native of Candia.

Catase'tum. From *kata*, downward, and *seta*, a bristle; referring to the position of the two horns of the column. Nat. Ord. *Orchidaceæ*.

An extensive genus of strong and rapid growing, terrestrial orchids, common in the

tropical portions of South America. The flowers of this genus are remarkable for singularity of form, and some are very beautiful, and have a delicious fragrance. The same plant not unfrequently produces what would seemingly appear to be totally different flowers, it has a decided propensity to "sport." The singular shape of their flowers, and other marked characteristics, entitle them a place in every collection. When at rest they should be kept cool and dry; in a growing state, they require strong heat and copious waterings. Increased by division.

Cat-brier. See *Smilax.*

Catchfly. See *Silene.*
Lobels'. See *Silene armeria.*

Ca'techu Tree. *Acacia* (*Mimosa*) *Catechu.*

Caterpillars. *Scorpiurus vermiculatus.*

Catkin. A deciduous spike, consisting of unisexual apetalous flowers. The flowers of the Willow, Hazel, etc., are Catkins.

Cat-Mint and **Catnip.** See *Nepeta.*

Cat-Tail. One of the popular names of Pearl Millet; also applied to *Equisetum, Hippuris,* and a few other plants.

Cat-Tail Flag. See *Typha.*

Cat's Tail Grass. One of the common names of the genus *Phleum,* Timothy or Herd's Grass.

Cattle-poison Plant. W. Australia. Several species of *Gastrolobiums.*

Cattle'ya. Named after Mr. Cattley, a distinguished patron of botany. Nat. Ord. *Orchidaceæ.*

What the Rose and Carnation are among garden plants, the Cattleya is among Orchids, pre-eminently beautiful. Not a species but possesses claims of the strongest nature on the culturist's attention, either for its delicate loveliness or the rich and vivid coloring of its large and handsome flowers. They are natives of the temperate parts of South America, and in cultivation are found to succeed in a lower temperature than is necessary for the majority of plants of the same order. They will grow either on cork, blocks of wood, or in pots of sphagnum, carefully drained and moderately watered at all times; indeed, the damp atmosphere of the house is nearly sufficient for them through the winter; and if about fifty degrees of heat is steadily maintained through this period, with an increase of about ten degrees in summer, the plants will be found to grow vigorously, and consequently flower in perfection. The colors of the flowers run through all the shades of white, rose, rosy-lilac, crimson and carmine, nor is even yellow absent. Where all are beautiful it is scarcely necessary to select. The following, however, should be in every collection. *C. citrina, crispa, Harrisoniæ, intermedia, labiata, Loddigesii. Percivilleana, Skinneri, Mossiæ* and *Trianæ,* with their numerous varieties, and many others. All the *Cattleyas* are increased by division. See *Orchids.*

Caudate. Tailed; having a process like a tail.

Caudex. The axis of a plant, consisting of the stem and root. Applied also to the trunk of Palms and Tree Ferns. *Caudex repens* is a creeping stem, or what is now called a rhizome. *Caudex descendens* is the root.

Caulescent. Acquiring a stem.

Cauliflower. *Brassica oleracea cauliflora.* The Cauliflower is the most delicate and delicious of the genus *Brassica.* Its early history is entirely unknown, but it is supposed to have originated in Italy. It is mentioned by Gerarde in 1597, as then very rare in England, and it was not brought to any degree of perfection, or grown for the market, until about 1700. From that period until the present, there has been a slow, but marked and steady improvement in the size and quality of this vegetable. To the English and Dutch gardeners we are chiefly indebted for the perfection the Cauliflower has attained. Heads of immense size are now grown for the market; it being by no means uncommon to see a head perfectly sound and smooth, fully ten inches in diameter, and, contrary to the usual rule, size is not obtained at the expense of quality, the larger, if differing at all, being more tender and delicious. The varieties of the Cauliflower are numerous. In this work we cannot point out the best, as locality and selection cause variations more marked than even the varieties. The most popular in the United States at this time are Snowball and Erfurt for early, and Algiers for late. For the perfection of the Cauliflower a deep, rich, loamy soil is required, a low, moist situation being preferable; it will not succeed in dry ground. Where irrigation can be employed, the greatest benefits will be derived; in fact, a large crop will be secured with irrigation, when without it the result would be total failure. Culture nearly the same as for cabbage, which see.

Caulophy'llum. The generic name of the plant commonly known as Blue Cohosh, sometimes called Pappoose-root.

Cayenne Pepper. See *Capsicum.*

Ceano'thus. Red Root, New Jersey Tea. An obscure name in Theophrastus, probably misspelled. Nat. Ord. *Rhamnaceæ.*

A genus of low-growing shrubs, one of the most conspicuous and best known being *C. Americanus,* a species common in dry woodlands. This shrub attained considerable notoriety during the American Revolution, on account of its leaves being dried and used as a substitute for tea, a practice not yet wholly discontinued. The roots are used in dyeing wool of a Nankeen or cinnamon color. There are species from Mexico and South America, that have lately been introduced into the green-house, and regarded with favor. Their season of flowering is too short to warrant very general cultivation.

Cecro'pia. Snake wood. A genus of ornamental, evergreen, soft-wooded, milky trees, natives of South America, and belonging to the Nat. Ord. *Urticaceæ.*

C. peltata, the Trumpet Tree of the West Indies and South America, so called because its hollow branches are used for musical instruments, is the only species of interest.

Cedar. See *Juniperus.*
Barbadoes and Bermuda. *Juniperus Bermudiana.*
Red Californian. *Libocedrus decurreus.*
Red Virginian. See *Juniperus.*

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Cedar-Apples. The Pennsylvanian name for the curious excrescences on *Juniperus Virginianus*, caused by a fungus.

Cedar of Lebanon. See *Cedrus*.

Cedre'leæ. Formerly regarded as a distinct order, now included as a tribe of the Nat. Ord. *Meliaceæ*.

Cedrone'lla. Supposed to be derived from *kedron*, the cedar, because of its fragrant resinous scent. Nat. Ord. *Labiatæ*.

A small genus of sweet-scented perennial herbs, rarely shrubs, with pale, purplish flowers in spikes or terminal racemes; natives of North America and the Canary Isles. *C. cordata*, a neat little alpine plant with a leaf somewhat like the Ground Ivy, and a lilac, slightly dotted, flower somewhat like that of the Salvia, is very dwarf and pretty, and will probably prove a desirable plant for rockwork.

Cedron Tree. See *Simaba*.

Ce'drus. The Cedar. From Latin *Cedrus*, Greek *Kedros*; a name for a coniferous tree in the time of Homer. Nat. Ord. *Coniferæ*.

This genus consists of a few species that have been separated from *Abies* and *Juniperus*, their characteristics being their evergreen leaves, disposed in bundles, or fasicles, and their upright cones. The Cedar of Lebanon is one of the most prominent species, so often mentioned in Sacred History. It is one of the most beautiful evergreen trees for lawn decoration, though rarely met with. There is a noble specimen on the grounds of W. F. D. Manice, at Queens, L. I. It is upwards of thirty feet high, with a trunk four and a half feet in circumference. There was a still larger specimen a few years since on the grounds of the late Geo. C. Thorburn, at Astoria, L. I. *C. Deodara*, the Deodar or Indian Cedar, is of vigorous pyramidal form with light silvery glaucous-green foliage, very graceful and drooping. It is a most charming evergreen, not entirely hardy, north of Philadelphia, but one of the most beautiful ornamental trees in the Southern States.

Ce'landine. The popular name of the genus *Chelidonium*, which see.

Celastra'ceæ. This natural order consists of shrubs, or small trees, natives of the warmer parts of Europe, Asia, and North America, and far more abundant beyond the tropics than within them. There are thirty-five known genera, and over two hundred and fifty species. *Celastrus*, *Euonymus*, and *Elæodendron*, are examples of this order.

Cela'strus. Staff Tree, Bitter Sweet. From *kelas*, the latter season; referring to the fruit hanging on the trees all winter. Nat. Ord. *Celastraceæ*.

This genus, consists of trees, shrubs, and climbers. One native species, *C. scandens*, is a handsome twining shrub, remarkable for its orange-colored capsules, and the scarlet coating of the fruit. It is planted as an ornamental climber, and is known by its popular name of Bitter Sweet. Propagated by seeds and suckers.

Celeriac or Turnip-Rooted Celery. *Apium graveolens var. rapaceum.* A very distinct variety of Celery, the peculiarity of which consists in the root, which closely resembles

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that of a turnip, and is the part eaten. It is more hardy than the common Celery, and can be preserved for use much later in the spring. It is but little grown except in France and Germany, where it is employed as a vegetable and as a salad. It is usually boiled until tender, and then slightly pickled in vinegar.

Ce'lery. *Apium graveolens.* Celery is a native of England, and is found in its wild state in marshy places and ditches near the coast. It is a biennial. There are in its wild state two kinds, the red and the white-stalked, of both of which there are numerous garden varieties, the cultivation of which is carried on to a very great extent, both here and in Europe. As it is a crop of vast importance we give in a condensed form such information regarding its cultivation, as will enable anyone to succeed in its cultivation.

The seeds are sown on a well-pulverized, rich border, in the open ground, as early in the season as the ground can be worked. (For instructions in sowing, see article headed "Sowing and Planting, Use of the Feet in.") The bed is kept clear of weeds until July, when the plants are set out for the crop. But as the seedling plants are rather troublesome to raise, when for private use only, and as they can usually be purchased cheaper than they can be raised on a small scale, it is scarcely worth while to sow the seed. But when wanted in quantity, the plants should always be raised by the grower, as Celery plants are not only difficult to transplant, but are usually too expensive to buy when the crop is grown to sell. The European plan is, to make a trench six or eight inches deep in which to plant Celery; but our violent rain storms in summer soon showed us that this plan was not a good one here, so we set about planting on the level surface of the ground, just as we do with all vegetables. Celery requires an abundance of manure, which, as usual with all other crops, must be well mixed and incorporated with the soil before the Celery is set out. When the ground is well prepared, we stretch a line to the distance required, and beat it slightly with a spade, so that it leaves a mark to show where to place the plants. These are set out at distances of six inches between the plants, and usually four feet between the rows, when the Celery is to be "banked" up for early or fall use; but when grown for winter use, from two to three feet between the rows is sufficient. Great care must be taken, in putting out the Celery to see that the plant is set just to the depth of the roots; if much deeper, the "heart" might be too much covered up, which would impede the growth. It is also important that the soil be well packed to the roots in planting, and this we do by returning on each row, after planting, and pressing the soil against each plant firmly with the feet; and if the operation can be done in the evening, and the plants copiously watered, no further attention will be required.

Planting may be done any time from the 15th of June to the first week in August. After planting, nothing is to be done but keep the crop clear of weeds until September; by that time the handling process is to be begun, which consists in drawing the earth to each

CELERIAC.

CELERY (WHITE PLUME).

CELERY (HANDLING).

CELERY "BANKED UP."

CELERY (HALF DWARF).

CELERY (STORING IN TRENCHES FOR WINTER).

CEREUS GRANDIFLORUS.

CELOSIA JAPONICA.

CENTAUREA CLEMENTEI.

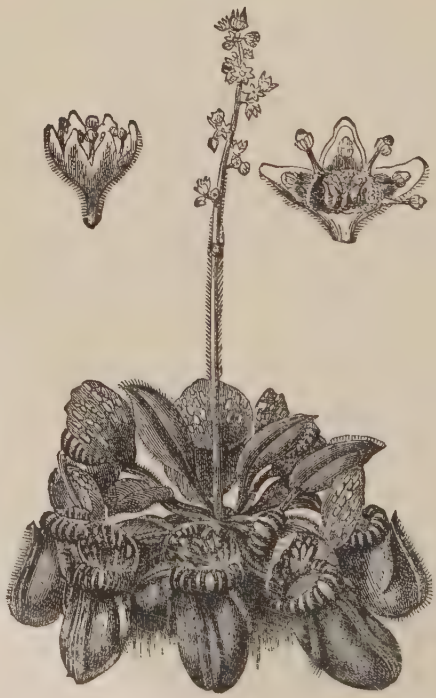
CENTRANTHUS MACROSIPHON.

CELOSIA CRISTATA.

CENTAUREA MOSCHATA.

CERASTIUM.

CELOSIA PLUMOSA.



CEPHALOTUS FOLLICULARIS.

CENTAUREA CYANUS.

side of the Celery, and pressing it tightly to it, so as to give the leaves an upward growth preparatory to blanching for use. Supposing this handling process is done by the middle of September, by the first week in October it is ready for "banking up," which is done by digging the soil from between the rows, and laying or banking it up with the spade on each side of the row of Celery. After being so banked up in October, it will be ready for use in three or four weeks, if wanted at that time. But if, as in most cases, it is needed for winter use only, and is to be put away in trenches, or in the cellar, as will hereafter be described, all that it requires is the operation of "handling." If the Celery is to be left in the open ground where it was grown, then a heavy bank must be made on each side of the rows, and as cold weather approaches—say in this latitude by the middle of November—an additional covering of at least a foot of leaves or litter must be closely packed against the bank, to protect it from frost; but it is not safe to leave it in the banks where it grows, in any section of the country where the temperature gets lower than 10 degrees above zero.

Perhaps the best way to keep Celery for family use is in a cool cellar. This can be done by storing it in narrow boxes, of a depth a little less than the height of the Celery. A few inches of sand or soil are placed in the bottom of the box, and the Celery is packed upright, the roots being placed on the sand at the bottom; but no sand or anything else must be put between the stalks of the Celery, all that is needed being the damp sand on the bottom of the box, the meaning of which is, that before Celery will blanch or whiten, it must first start at the root; hence the necessity of placing the roots on an inch or so of damp sand. Boxes thus packed and placed in a cool cellar in November, will be blanched fit for use during January, February, and March, though for succession it will be better to put it in the boxes, from the open ground, at three different times, say October 25th, November 10th, and November 20th. Or if the boxes are not at hand, the Celery may be put away on the floor of the cellar, in strips of eight or nine inches wide, divided by boards of a width equal to the height of the Celery. That is, if the Celery is two feet high, the boards separating it must be about the same height. The reason for dividing the Celery in these narrow strips by boards is to prevent heating, which would take place if placed together in too thick masses. The dates above given apply, of course, to the latitude of New York; if further south, do the work later; if further north, earlier. If one has no suitable cellar, the Celery can be very readily preserved in the manner followed by market gardeners. Thus, after it has been "handled" or straightened up, as before described, what is intended for use by Christmas should be dug up about October 25th; that to be used in January and February, by November 10th; and that for March use, by November 20th, which latter date is as late as it can be risked here. Although it will stand quite a sharp frost, the weather by the end of November is often severe enough to kill it, or so freeze it in the ground that it cannot be dug up. The ground in which it is to be preserved for winter use must be as dry as possible, and so arranged that no water can remain in the trench. Dig a trench as narrow as possible (if it should not be wider than ten inches), and of a depth equal to the height of the Celery; that is, if the plant of Celery be eighteen inches high, the trench should be dug eighteen inches deep. The Celery is then packed exactly in the manner described for storing in boxes to be placed in the cellar; that is, stand it as near upright as possible, and pack as closely together as can be done without bruising it; no soil or sand must be put between the stalks. As the weather becomes cold, the trenches should be gradually covered with leaves or litter to the thickness of six or eight inches, which will be enough to prevent severe freezing, and enable the roots to be taken out easily when wanted. Another method now practised by the market gardeners of New Jersey is as follows: before the approach of very cold weather—say the middle of December—the Celery in the trenches is pressed somewhat closely together by passing a spade down deeply alongside of the trench on each side, but about three or four inches from the Celery. It is best done by two men, so that they press against each other, thus firming the top of the Celery in the trench until it is compact enough to sustain a weight of three or four inches of soil, which is taken from the sides of the trench and spread over the Celery. This earth covering keeps it rather fresher than the covering of litter, though on the approach of cold weather the earth covering is not sufficient, and a covering of six or seven inches of leaves must yet be placed over the earth covering.

From 200 to 500 roots are usually required for the use of an ordinary family. The varieties we recommend are the Golden Dwarf, Sandringham, Golden Self-blanching, White Walnut, White Plume, and London Red.

The peculiarity of the variety known as "White Plume" is that *naturally* its stalks and portions of its inner leaves are white, so that by closing the stalks, either by tying them up with matting, or by simply drawing the soil up against the plants and pressing it together with the hands, and again drawing up the soil with the hoe or plough, so as to keep the soil that has been squeezed against the Celery in its place, completes the work of blanching; while it is well-known that in all other kinds of Celery, in addition to this, the slow and troublesome process of "banking" with the spade is a necessity. Another great merit of the "White Plume" Celery is that it far exceeds any known vegetable as an ornament for the table, the inner leaves being disposed somewhat like an ostrich feather, as to suggest the name we have given it of "White Plume." It is well known that one-half the value of a Celery, particularly in our best hotels and restaurants, is held to be its value as a table ornament, and for this purpose this new variety is admirably fitted. In addition to this, its eating qualities are equal to the very best of the older sorts, being *crisp, solid* and having a peculiar nutty flavor, peculiar to the "Walnut" and some of the red sorts; altogether we cannot find words sufficient to describe its many merits as it deserves. The great bugbear in the cultivation of Celery, by those engaged in growing it

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for market, has been the labor entailed in the "banking" to whiten or blanch it; and with the unskilled amateur growing a few hundred for private use, the troublesome process of "banking" has usually been detriment sufficient to prevent him from trying. In the first week of October, of 1882, the Celery banks in Hudson Co., N. J., must have cost at least $10,000 in labor to erect; but a rain storm of twenty-four hour's duration washed the banks down and destroyed the work of weeks. Had this new Celery been under process of blanching, no high banks would have been needed and the storm would have been nearly harmless, as the "wash" would have done but a trifling injury. But absolute perfection is hardly to be expected in anything, and the "White Plume" Celery has one drawback; the very qualities that make its culture so simple in the fall and early winter months, unfits it for a late Celery that will keep until spring, as its tenderness of structure causes it to rot quicker than the old green kinds; but, to be used during the months of October, November, December and the early part of January, we advise it to be grown, if quality and the saving of labor is a consideration. It is equally as hardy against frost as the other kinds; in size and weight it is very similar to those popular kinds: the "Golden Dwarf" and "Half Dwarf"—in fact it originated in what is known as a "sport" from the "Half Dwarf;" that is, a single plant showed the whiteness of stem and peculiar feathery leaves, which fortunately, permanently reproduced itself from seed and gave us this entirely new type of Celery. Its culture is in all respects the same as that directed for the other sorts, with the exception that we are saved the trouble of high "banking." It is also we think, the earliest Celery in cultivation, and though fit to use long before other sorts, is found to keep nearly as well as the best of the older kinds, except perhaps the red which though comparatively new in cultivation in this country is fully equal if not superior in flavor and crispness to the white, and is decidedly more hardy and a much better keeper.

A new variety known as the "Bouquet" Celery, with beautiful feathery foliage, introduced in 1888, is very useful for table decoration, as well as for all purposes for which Celery is used, as it is equally as good as any of the others.

We are often asked for the cause of and remedy for Celery rusting or burning. The cause, we think, is the condition of the weather, which destroys the tender fibers, or what are called the working roots of the plant, for we find it is usually worse in seasons of extreme drought or moisture, particularly in warm weather.

We know of no remedy, nor do we believe there is any. We may say, however that it is less liable to appear on new, fresh soils, that are free from acids or sourness, than on old soils that have been surfeited with manure, and have had no rest.

Although, under ordinary conditions, if proper varieties of Celery are used, the crop should never be pithy or hollow, yet we have found that now and then even the most solid kinds of Celery have become more or less hollow when planted in soft, loose soils, such as reclaimed peat bogs, where the soil is mostly

composed of leaf mould. In fact, on heavy or clayey soils the Celery will be specifically heavier than on lighter soils.

Cells. Cavities in the interior of a plant. The cells of tissue are those which form the interior of the elementary vesicles. Cells of the stem, air-cells, etc., are spaces organically formed by a peculiar building up of tissue for various vital purposes.

Cellular System. That part of the plant which consists of cells or elementary vesicles.

Celo'sia. From *kelos*, burnt; in reference to the burnt-like appearance of the flowers of some of the species. Nat. Ord. *Amaranthaceæ*.

These are ornamental or curious plants. Only one or two species, however, are regarded as sufficiently ornamental to be included in ordinary collections. One of these, *C. cristata*, the common Cockscomb, is almost universally grown. To be grown well, the seed should be sown in March, in the greenhouse or hot-bed. As soon as the young plants can be handled safely, they should be placed singly in small pots, filled with the same kind of soil in which they are started. In these they should remain until symptoms of flowering appear, when they may be changed into larger pots or turned out into the border, where they should have a rich soil, such as loam and rotten manure, in equal parts; then, with a liberal supply of liquid manure, flower-heads of enormous size will be obtained. It is on this account that small pots are recommended for the young plants up till the appearance of the flowers; for if the roots be allowed much space at this period, the stem naturally increases in height without a compensating increase in the size of the "comb." This species was introduced from Asia in 1570, and from it florists have produced a great number of varieties. The other species differ from *C. cristata* in having large plumes of inflorescence, which form pyramidal masses of color. Many sorts have a graceful pendant habit, which renders them objects of great beauty. When well grown they are excellent subjects for table decoration, and also for the green-house, or for cutting during the autumn and early winter months.

Ce'lsia. A small genus of Scrophulariads, consisting of hardy or half-hardy annuals or biennials. *C. cretica*, a hardy biennial, is the best known and by far the showiest of the species. As cultivated, it grows three to four feet in height, with a long terminal spike of large yellow blossoms, each of which arises from the axil of a small leaf or bract. A native of Crete. Introduced in 1752.

Ce'ltis. Nettle Tree, Hack-berry, Sugar-berry. An ancient name for the Lotus. The fruit of the European Nettle Tree is supposed to have been the food of the *Lotophagi*. Nat. Ord. *Urticaceæ*.

A genus of hardy deciduous, low, or medium-sized trees, of an ornamental character. Several of the species and their varieties are common in the Southern and Western States, where they have received the various popular names above given.

Ce'nchrus. Bur Grass, Hedge-hog Grass. From *Kegchros*, the Oriental name of the Millet. Nat. Ord. *Graminaceæ*.

C. tribuloides, the only species, is common on the sandy hills on the coast, or near salt water; also near the great northern lakes. It is regarded as a troublesome weed, on account of its prickly burrs.

Centa'urea. The classical name of a plant fabled by Ovid to have cured a wound in the foot of Chiron made by the arrow of Hercules. Nat. Ord. *Compositæ*.

An extensive genus of hardy herbaceous perennial and annual plants, varying in height from one to five feet, and of nearly every shade of color from yellow to red, blue, or deep purple. As they continue to bloom for a long time, they are well suited for the margin of borders in the flower garden, and some of the dwarf species may be even admitted into beds. The perennial kinds grow in almost any description of soil, nor are the annuals more particular; they merely require to be sown where they are to remain, being afterward thinned to the proper distances from each other. *Centaurea cyanus*, a native of Britain, is the Blue Bottle or Ragged Sailor of our gardens. *C. candidissima* and *C. gymnocarpa* are natives of the Levant, and are most valuable border plants, their leaves being heavily clothed on both sides with a white, downy covering, which gives them a striking aspect. Propagated by seed sown in January or February in a hot-bed.

Centauri'dium. Origin of name unknown. Nat. Ord. *Compositæ*.

The only species of this is *C. Drummondi*, a Texas plant, free-flowering, and succeeding well in a light soil. Color bright orange. A hardy annual, growing freely from seed. Syn. *Xanthisma Texana*.

Ce'ntaury. *Erythræa centaurium*.

Centaury. American. A common name for the genus *Sabattia*.

Centrade'nia. From *kentron*, a spur, and *aden*, a gland; having spur-like glandular appendages to its anthers. Nat. Ord. *Melastomaceæ*.

Tropical undershrubs and herbaceous perennials, *C. rosea* and *grandifolia*, natives of Mexico, are moderate-sized, dwarf, spreading plants of easy growth, producing freely in spring close heads of pinkish-white flowers. They require the same treatment as the Fuchsia, and are increased from cuttings.

Centra'nthus. Red Valerian. From *kentron*, a spur, and *anthos*, a flower; referring to the spur-like process at the base of the flower. Nat. Ord. *Valerianaceæ*.

A small genus of hardy annuals from Grenada, and herbaceous perennials from the south of Europe. They are mostly of compact habit, free-flowering, and very pretty. The annuals are well adapted for rock-work or ribbon borders, and grow freely in common garden soil. Introduced in 1849.

Centroclinium. A synonym for *Onoseris*, which see.

Centropo'gon. From *kentron*, a spur, and *pogon*, a beard; in reference to the fringe which envelops the stigma. Nat. Ord. *Lobeliaceæ*.

A small genus of very handsome herbaceous perennials from Surinam and Guatemala. One of the species bears edible fruit. *C. tovariensis* is a very beautiful plant for the green-house, having rosy-crimson flowers, similar in form to the Lobelias, but of larger size, produced singly on short axillary peduncles. The most popular member of this genus is a hybrid between *C. fastuosus* and *Syphocampylos betulæfolius*, and known as *C. Lucyanus*. It has pretty rosy-carmine, tubular flowers, and from its flowering naturally during the dead of winter it is a most desirable plant. Raised by M. Desponds, of Marseilles, in 1856. They are increased by division or from seed.

Centrose'ma. Spurred Butterfly Pea. A genus of *Leguminosæ*, consisting of hardy and greenhouse twining perennial plants, with one exception confined almost exclusively to South America, and mostly to Brazil. The leaves are made up of three leaflets, rarely five or seven, the leaflets opposite and the terminal one rather distant. Some of the species produce large and elegant pea-like flowers, singly or in axillary racemes; colors, white, violet, rose or blue. *C. Virginianum* is widely distributed, the species being common in dry, sandy woods from Maryland southward, also in Brazil and West Africa. All the species are increased readily from seed. Included by many botanists with *Kennedya*.

Centroste'mma. A genus of tropical climbing shrubs, closely allied to *Hoya*.

Century-plant. See *Agave Americana*.

Cephæ'lis. From *kephale*, a head; in reference to the arrangement of the flowers. Nat. Ord. *Rubiaceæ*.

Shrubs, rarely perennial herbs, mostly natives of Tropical America. *C. Ipecacuanha* producing the true Ipecacuanha belongs to this genus, and is a native of Brazil. It is a most ornamental and deciduous shrub, the root of which has been long used in medicine. It is in cultivation, and was introduced in 1839.

Cephala'nthus. Button Bush. From *kephale*, a head, and *anthos*, a flower; The flowers are disposed in globular heads. Nat. Ord. *Rubiaceæ*.

A small genus of hardy deciduous shrubs confined to North America, and common in marshy places from the Atlantic to the Pacific coasts, and from Maine to Florida. *C. occidentalis*, is a handsome bushy shrub, bearing numerous creamy white flowers, in round heads.

Cephalota'xus. A small genus of Japanese Coniferæ, resembling the Yew in general appearance. *C. Fortunei*, the best known species, is a tree of medium size, rounded form, dark green foliage, and long, slender, drooping branches. Propagated by seeds or cuttings.

Cepha'o'tus. New Holland Pitcher Plant. From *kephalotes*, headed; the filaments of its stamens are capitate. Nat. Ord. *Saxifragaceæ*.

C. follicularis, the only species, is a native of swampy places in King George's Sound. It has a very short or contracted stem, with spoon-shaped stalked leaves, among which are mingled small pitcher-like bodies, placed on short, stout stalks, and closed at the top with lid, like the true Pitcher Plants (*Nepenthes*). These pitchers are of a green color, spotted with yellow or brown, and provided with hairs. The flowers are white, small, and produced on a long spike. Propagated by offsets. Introduced in 1822.

Ceraceous. Wax-like.

Cera'stium. Mouse-ear Chickweed. From *keras*, a horn; because many of the species have capsules like an ox's horn. Nat. Ord. *Caryophyllaceæ.*

Of this somewhat extensive genus only a few of the species are worthy of cultivation, but none of the annuals. Some of the hardy trailing species are quite ornamental when used for edgings or rock-work. *C. tomentosum* has greyish-white foliage, and is largely employed as an edging to summer flower beds, and as a ground-work in carpet bedding. Propagated by division of the roots or by seeds.

Cera'sus. Cherry. From *Cerasus*, a town of Pontus, in Asia, whence the Cherry was brought to Rome by Lucullus. Nat. Ord. *Rosaceæ.*

A genus of hardy deciduous trees and shrubs, the species and varieties including some of our most ornamental trees for the lawn, as well as highly prized fruit trees for the orchard. The numerous varieties of cultivated Cherries are supposed to have originated from *C. avium* and *C. vulgaris*. Those belonging to *C. avium* are best represented by the Bigarreau and Black Heart varieties; those of *C. vulgaris* by the May Duke and Morello. Both of these species appear to be natives of Europe, although Pliny states that there were no Cherries in Italy before the victory obtained over Mithridates by Lucullus, who was, according to the above author, the first who brought them to Rome from Cerosante about sixty-eight years before the Christian era. It is also stated by the same authority, that "in less than 120 years after, other lands had Cherries, even as far as Britain beyond the ocean." Theophrastus, 300 years B. C., mentions the Cherry as being common in Greece, from which some writers contend that the name of the city was derived from the tree, instead of the tree from the town or city. The Cherry-tree begins to bear usually in two or three years after planting trees of the size sold at the nurseries, and continues to enlarge in growth and productiveness annually, until it often attains a larger size than most of our fruit-trees. It grows freely in almost any soil that is free from moisture, preferring, however, like most other fruits, a deep loamy soil. The tree may be trained as desired, either in pyramidal form or with a round top, by pruning and directing the shoots. They are now worked extensively on the Mahaleb stock. Many varieties being found to be more hardy on it, and it is adapted to a greater variety of soil. The following are good varieties (for description see nursery catalogues): Black Tartarian, Coe's Transparent, Downer's Late, May Duke, Kirtland's Mary, Rockport, Yellow Spanish, Late Duke, and Morello. The well-known Wild Cherry of our woods is *C. serotina*. The common double Cherry and the French double Cherry deserve a place in every garden; and equally so do the Chinese Cherry, *C. pseudo-cerasus;* the All-Saints' Cherry, *C. semperflorens;* the Bird Cherry, *C. padus;* and the Virginian Bird or Choke Cherry, *C. Virginiana.*

Cerato'nia. Carob Tree. From *keras*, a horn; in reference to the shape of the seed-pod. Nat. Ord. *Leguminosæ.*

C. siliqua, the only species, is a tree of medium size, growing extensively in the south of Europe, particularly in some of the Spanish provinces, and produces a fruit known as the *Algoroba* or *Carob Bean*, which is an important article of commerce. It is chiefly used for the feeding of cattle, but is largely used by the poor for food when there is a scarcity of grain. This is generally considered the Locust Tree of Scripture; and in Spain, where the seeds are eaten, it is called St. John's Bread. Under this name the pods are often sold on the streets in New York. It is now generally supposed that the shells of the Carob pod were the husks that the prodigal son desired to partake of with the swine.

Cerato'pteris. A peculiar genus of tropical aquatic Ferns, found growing in quiet waters. The fronds are much divided, membranaceous, and succulent, the sterile ones being more foliaceous and less divided, with evident reticulated veins. *C. thalictroides* is the only species, and when well grown in water, forms a handsome plant and is not inaptly called the Floating Stag's-horn Fern.

Ceratoste'ma. From *keras*, a horn, and *stema*, a stamen; the anthers are spurred. Nat. Ord. *Vacciniaceæ.*

A small genus of very pretty green-house evergreen shrubs, natives of Peru. The flowers are tubular, of orange, crimson, or scarlet color, produced in terminal clusters in May. Propagated by cuttings. Introduced in 1846.

Ceratosti'gma plumbaginoides. This is now given as the correct name of *Valoradia plumbaginoides*, better known in cultivation as *Plumbago Larpentæ.*

Ceratoza'mia. A genus of *Cycadaceæ*, deriving its name from the presence of two horns on the scales of its Zamia-like fruit. *C. fusco-viridis* is a magnificent plant of recent introduction from Mexico. It is a tree of moderate size, with leaves from three to four feet long, broadly pinnate, and of a fine arching habit. The young leaves are of a rich, bronzy, chocolate color, gradually changing to olive green, and ultimately developing into deep green. Young plants are obtained by suckers or from seed.

Cercidiphy'llum Japonicum. A late and valuable introduction from Japan. The leaves are medium sized, heart-shaped and purple when young, like those of the Judas Tree. The flowers are inconspicuous. The shape of the tree is pyramidal, bark smooth and as a whole, is a stately and beautiful object.

Ce'rcis. Judas Tree. From *kerkis*, a shuttle-cock; the name given by Theophrastus. Nat. Ord. *Leguminosæ.*

A genus of handsome, low-growing trees, with singular leaves and very showy flowers. The flowers have an agreeable acid taste, and are frequently used by the French in salads, or made into fritters with batter, and the flower buds are pickled in vinegar. It is an ornamental tree in spring as the flowers completely clothe the branches and even the upper part of the trunk with purple before the leaves appear. *C. siliquastrum* is a native of the south of Europe, and of which Gerarde, in compliance with the popular notions of his time, says: "This is the tree whereon Judas did

hang himself; and not upon the Elder Tree, as it is said." (Herbal, 1596.) *C. Canadensis*, a native species, is common on the banks of streams from Canada to Louisiana. *C. Japonica*, from Japan, is a very dwarf tree or shrub, with bright rosy-pink flowers, much larger than *C. Canadensis*, and exceedingly beautiful in early spring.

Ce'reus. Torch Thistle. From *cereus*, waxy; referring to the shoots of some of the species being easily bent. Nat. Ord. *Cactaceæ*.

An extensive genus, the species of which are remarkable for their singularity of form, and for the beauty of their flowers. Few classes present greater contrasts. Some are round, some angular, some smooth, and others fluted. Some are climbers or creepers, while others grow like huge trees, attaining a height of sixty feet, with a diameter of two or three feet. The night-blooming section is very interesting and beautiful, *C. grandiflorus*, the type, usually requires age to flower well. A strong plant will frequently have six to ten exceedingly large and beautiful sweet-scented flowers open in an evening. They are very transient, lasting only a few hours, neither do they open again when once closed. They begin to open between six and eight o'clock in the evening, are fully expanded by eleven, and by three or four in the morning they are closed; but during their short continuance there is scarcely any flower of greater beauty, or that makes a more magnificent appearance. The flowers of the night-blooming section vary in size from six to fourteen inches in diameter, according to the species, *C. MacDonaldi*, being the largest, and sometimes measuring fourteen to sixteen inches. The sepals in some are brown, in others brownish-yellow, and in others again pinkish-brown. The petals in some are pale, yellowish-white, and in others pure white. The stamen are usually a bright yellow. Some are sweet-scented, others the reverse, while some are odorless, but all are beautiful. The flowers of the day-blooming section are usually small, but very bright and pretty. For other night-blooming kinds, see *Phyllocactus*.

Ceriferous. Bearing, or producing wax.

Ceri'nthe. Honeywort. From *keros*, wax, and *anthos*, a flower; referring to its being a favorite flower with bees. Nat. Ord. *Boraginaceæ*.

A small genus of hardy annuals, common in Central Europe. One species, a native of the south of France, is a hardy perennial. The annuals have long been cultivated in gardens, under the name of Honeywort. They have tubular, yellow flowers, in one-sided drooping racemes. They sow themselves when once planted, and require but little care.

Cernuous. Inclining a little from the perpendicular; generally applied to drooping flowers.

Cerope'gia. A genus of *Asclepediaceæ*, containing over fifty species, usually twining, sometimes erect perennial plants, often with tuberous roots; remarkable for the peculiar shape and marking of the flowers. *C. elegans*, has been long in cultivation, but is surpassed by *C. Gardnerii*, with creamy white and purple flowers, and *C. Thwaitesii*, with yellow flowers beautifully sprinkled with dark blood-red spots. The two latter are comparatively late introductions from Ceylon, and are elegant green-house twiners.

Cero'xylon. Wax Palm. From *keros*, wax, and *xylon*, wood; the trunk being coated with wax. Nat. Ord. *Palmaceæ*.

A small genus of Palms, consisting of three species, two of which are handsome trees of great size. *C. andicola*, the Wax Palm of New Grenada, was discovered by the celebrated traveler, Humboldt, who describes the tree as attaining the prodigious height of 160 feet, while it differs from other species of Palms in flourishing under a much colder temperature, it being found on elevated mountains, extending as high as the lower limit of perpetual snow. Its tall trunk is covered with a thin coating of a whitish waxy substance, giving it a marbled appearance. This substance, which forms an article of commerce, consists of two parts resin and one of wax and is obtained by scraping the trunk. It is mixed with tallow and made into candles, which are of superior quality. The trunk yields a valuable timber, used for building purposes, and the leaves are used for thatching roofs. Propagated from seed.

Ce'strum. From *Kestron*, an ancient Greek name. Nat. Ord. *Solanaceæ*.

Green-house shrubs, natives of the East Indies and South America. *C. Parqui*, syn. *C. nocturnum*, frequently called the Night-Blooming Jasmine, is a much esteemed species, which flowers abundantly all summer, if planted in the open air in May, and fills the whole garden with its fragrance at night, though perfectly inodorous during the day. It should be taken up in autumn, and if kept in a box or pot, rather dry, may be easily preserved in a warm cellar until spring. *C. aurantiacum*, with large panicles of orange-colored flowers, is an excellent plant for early winter green-house decoration. Some authors include *Habrothamnus* under this genus.

Ce'terach. From *Chetherak*, the Arabic name. Nat. Ord. *Polypodiaceæ*.

A small genus of Ferns, somewhat resembling the *Asplenium*s. *C. officinarum*, the Scale Fern, is an interesting species, suitable for rock-work, but impatient of much water, as are all of the species. Both the hardy and green-house species are valuable in collections. They are natives of Great Britain and the Canary Islands.

Chæno'stoma. A considerable genus of herbs and under-shrubs, belonging to *Scrophulariaceæ*, and natives of South Africa. *C. hispida* is a dwarf shrubby species with white axillary flowers produced in great abundance all the season. Propagated by seeds or cuttings.

Chærophy'llum Bulbosum. Bulbous rooted Chervil. See *Anthriscus*.

Chærophy'llum Sativum. A synonym of *Anthriscus cerefolium* (Chervil).

Chain Fern. See *Woodwardia*.

Chamæba'tia. From *chamai*, on the ground, dwarf, and *batos*, a bramble; referring to its low growth and bramble-like flowers. Nat. Ord. *Rosaceæ*.

C. foliosa, the only representative of this genus, is a beautiful Californian shrub, about three feet high. The leaves are very finely

divided, resembling those of the Millfoil (*Achillea*), but of a much harsher texture, and having a pleasant balsamic odor. The flowers are white, in terminal cymes, very much like those of the Hawthorn.

Chamæcla'don. From *chamai*, dwarf, and *kladon*, a branch; in allusion to the habit of the species. Nat. Ord. *Aroideæ*.

A genus of stove-house plants, natives of tropical Asia, and the Malayan Archipelago. *C. metallicum*, the only species yet in cultivation is a grand arad, of close tufted growth, with ovate leaves of a rich, deep bronzy-green color. Introduced from Borneo in 1884.

Chamæcy'paris. From *chamai*, dwarf, and *kuparissos*, Cypress; The Bastard, or Dwarf Cypress. White Cedars. Nat. Ord. *Coniferæ*.

A genus ranking extremely close to *Cupressus*, the principal distinction between the two, being the more numerous ovules beneath the fertile scales of the latter. Like most of the other genera belonging to this order this one is overloaded with synonyms, scarcely any two authorities agreeing as to the correct generic name. Many species of *Cupressus*, and *Retinospora*, are placed under this genus by some botanists.

Chamædo'rea. From *chamai*, dwarf, and *dorea*, a gift; referring to the nuts of this Palm being easily reached. Nat. Ord. *Palmaceæ*.

A genus of Palms containing about forty species, common in Mexico and South America. *C. Ernesti-Augusti* is a small species, a native of New Grenada. It grows from four to five feet high, with wedge-shaped leaves about two feet long. The female flower spikes of this species, which are very beautiful, are about a foot long, cylindrical, and undivided. At first they are of a dark green color, studded with red, bead-like flowers. After these fall away, the spike becomes a bright coral-red color. Several of the species are interesting green-house plants, and are readily grown from seed.

Chamæli'rium. Devils-bit. *C. luteum*, the only species, is a Liliaceous plant, nearly allied to *Helonias*, and is not uncommon in low grounds from western New York to Illinois. It is a smooth herb with a bitter, thick, and abruptly-tuberous root-stock, and a tall, erect stem, terminated by a long spiked raceme of small white bractless flowers. Known popularly as Blazing Star.

Chamæpe'uce. From *chamai*, dwarf, and *peuke*, a pine; resemblance. Nat. Ord. *Compositæ*.

A genus of uninteresting plants, annuals, perennials, and biennials, common throughout Europe. Of the entire genus, the only two deserving attention are *C. Casabonæ*, and *C. diacantha*. Both of these are effective for sub-tropical gardening, growing in compact rosette-like patches and not producing flower stems until the second year.

Chamæ'rops. From *chamai*, dwarf, and *rhops*, a twig; most of the species being dwarf. Nat. Ord. *Palmaceæ*.

A genus of low-growing Palms, including several species, some growing as far north as the Carolinas. The Palmetto State furnishes *C. Palmetto*, hence the name. Many of the species are half-hardy, and all make beautiful plants for lawn decoration. They make a rapid growth in summer if given a rich loam,

and liberal applications of liquid manure. They are increased by seed.

Chamisso'a. A genus of *Amaranthaceæ*, now included in *Achyranthes*, which see.

Chamomile. The popular name of *Anthemis nobilis*.

Chara'ceæ. A small natural order of Acrogens, consisting of two, or at most three, genera. The species are all aquatic, and are found in almost all parts of the world, but they are most common in temperate countries. The species are either monœcious or dicœcious, the two kinds of fruit being often seated close to each other.

Cha'ries Heterophylla. Given by some authors as the correct name of *Kaulfussia amelloides*.

Charlock. The common name of *Sinapis arvensis*, a well-known weed.

Cheat, or Chess. See *Bromus*.

Checkerberry. See *Gaultheria*.

Cheila'nthes. Lip Fern. From *cheilos*, a lip, and *anthos*, a flower; in reference to the form of the indusium. Nat. Ord. *Polypodiaceæ*.

An extensive genus of Ferns, found scattered over nearly all parts of the world. There are several species found in most parts of the United States. Some of the tropical species are exceedingly pretty, among which *C. farinosa*, a native of the Island of Luzon, has ivory-black stems, the fronds being dark green above, and of a pure white beneath, caused by a powdery substance, which has given this species the popular name of Silver Fern. Many other species are in cultivation; *C. hirta*, *lanuginosa*, *viscosa*, *Ellisii*, and many others being particularly desirable. They are propagated from spores, or by division of the roots when just commencing to grow.

Cheira'nthus. Wallflower. From *cheir*, the hand, and *anthos*, a flower; in reference to the custom of carrying the Wallflower in the hand for a nosegay. Nat. Ord. *Cruciferæ*.

Well-known herbaceous plants, much prized for the delightful odor of their flowers, which are produced from April to July. *C. Cheiri*, the common Wallflower, is generally grown, and is a great favorite in English gardens, where it flowers freely. Our climate does not suit it so well as that of England, as it delights in a moist atmosphere. The fine double varieties are increased by cuttings, and should be grown in a cool house, in a strong, rich loam. Most of the species are from southern Europe, and have been grown for centuries.

Chelido'nium. Celandine, Swallow-wort. From *Chelidon*, a swallow; it is said that the plant flowers at the time of the arrival of the swallows, and dries up at their departure. Nat. Ord. *Papaveraceæ*.

C. majus, the only species, is a perennial herb, abounding in an acrid, saffron-colored juice. It is a common plant in waste places.

Chelo'ne. Shell-flower. From *chelone*, a tortoise; the back of the helmet of the flower being fancifully compared to a tortoise. Nat. Ord. *Scrophulariaceæ*.

Most of the genus are hardy herbaceous perennial plants, common in moist places westward. The flowers are white, rose-color, or purple, their singular beauty entitling them to a place in every collection. They succeed well in ordinary garden soil, and are

propagated by division of the roots and by seed.

Chenopodia'ceæ. A natural order of herbs or under-shrubs, generally inconspicuous plants, but including some valuable species used as pot-herbs. Spinach, *Spinacia oleræea*, and Beet, *Beta vulgaris*, are examples. There are seventy-four known genera, and over 500 species in this order.

Chenopodium. From *chen*, a goose, and *pous*, a foot; in allusion to the shape of the leaves. Nat. Ord. *Chenopodiaceæ*. An extensive genus, many of the species being troublesome weeds, the more common being *C. album*, the Pigweed; *C. glaucum*, Goose-foot; and *C. Ambrosoides*, Mexican Tea. The stems of the Mercury Goose-foot or Good King Henry, are still used in some parts of England as a substitute for Asparagus, while the leaves are used while young instead of Spinach.

Cherimoyer. See *Anona Cherimolia.*

Cherokee Rose. See *Rosa lævigata.*

Cherry. See *Cerasus.*
Barbadoes. *Malphigia glabra.*
Bird. *Cerasus padus.*
Choke. *Cerasus Virginiana.*
Cornelian. *Cornus mas.*
Laurel. *Prunus Lauro-cerasus.*
Plum. *Prunus cerasifera.*
Winter. *Physalis Alkekengi.*

Cherry-Pepper. *Capsicum cerasiforme.*

Chervil. See *Anthriscus.*

Chervil. Tuberous rooted, or Turnip. *Chærophyllum bulbosum.*

Chess. See *Bromus.*

Chestnut. The common name for *Castanea vesca.*
Earth. *Bunium flexuosum* and *Conopodium denudatum.*
Horse. *Æsculus Hippocastanum.*
Spanish or Sweet. *Castanea vesca.*
Water. *Trapa natans.*

Chestnut-oak. *Quercus Prinus*, and *Q. Castanea.*

Chick Pea. See *Cicer.*

Chick Weed. *Stellaria media.*
Mouse-ear. *Cerastium vulgatum.*
Water. *Montia fontana.*

Chicory. See *Cichorium Intybus.*

Chili Pepper. A common name for *Capsicum baccatum.*

Chilo'psis. From *cheilos*, a lip, and *opsis*, like; referring to the irregular lobes of the corolla. Nat. Ord. *Bignoniaceæ.*

C. linearis, the only species, is a native of Mexico; it is an erect branching shrub, with long alternate leaves, producing beautiful rose-colored flowers in terminal dense spicate racemes. It is but rarely met in green-house collections. It was introduced in 1825, and is propagated by cuttings.

Chima'phila. From *cheima*, winter, and *phileo*, to love; these little plants remaining green all winter. Nat. Ord. *Ericaceæ.*

A small genus of pretty little native, hardy, trailing, evergreen plants, commonly known as *Pipsissewa* and *Spotted Wintergreen*, the latter name being applied to *C. maculata*, one of our most beautiful native plants with variegated foliage. It is common in dry woods throughout the Middle States, but is very difficult of cultivation in the garden.

Chimona'nthus. Japan Allspice. From *cheimon*, winter, and *anthos*, a flower; referring to the time of flowering. Nat. Ord. *Calycanthaceæ.*

C. fragrans, the only species is a native of Japan, and is remarkable for the fragrance of its flowers, which appear in early spring, before the leaves begin to unfold. It is a slender, much branched shrub, with flowers about an inch in diameter, made up of a large number of pale yellow waxy petals, arranged in several rows, either yellowish-red or chocolate-colored, and which last for a long time. In this latitude it requires a sheltered position.

China Aster. See *Callistephus.*

Chinese Bell-flower. See *Abutilon.*

Chinese Grass-cloth Plant. See *Bœhmeria.*

Chinese Hawthorn. See *Photina.*

Chinese Primrose. See *Primula.*

Chinese Rose. *Hibiscus rosa-sinensis.*

Chinese Sugar-cane. See *Sorghum.*

Chi'nquapin. *Castanea pumila*, the most palatable of all the Chestnut family; indigenous to the Middle Atlantic States.
Water. See *Nelumbium luteum.*

Chiona'nthus. Fringe Tree. From *chion*, snow, and *anthos*, a flower; in reference to its long racemes of pure white flowers. Nat. Ord. *Oleaceæ.*

A genus of hardy deciduous shrubs. *C. Virginica*, one of the best known, and commonly grown under the popular name of *Fringe Tree*, is a very ornamental shrub of easy cultivation, particularly adapted for the lawn, not only for its showy flowers in spring, but for its deep green glossy foliage, which, under favorable circumstances, will equal in size that of the *Magnolia grandiflora*, retaining its freshness until late in the autumn. This species is a native of Pennsylvania and southward, and is readily propagated from seeds or cuttings. It succeeds best when grafted on the common ash, being much more vigorous, and will attain a height of twenty-five feet.

Chio'nodo'xa. Glory of the Snow. From *chion*, snow, and *doxa*, glory; in reference to the plants flowering among the melting snows of their native habitats. A small genus of hardy *Liliaceæ*. *C. Lucillæ*, which has lately been reintroduced, is praised by all as one of the most exquisite of spring flowering plants. It is also valuable for winter blooming in the house and for cut flowers. Native of Asia Minor and Crete.

Chionogra'phis. From *chion*, snow, and *graphis*, a pencil; the flower spike being like a brush of snow. Nat. Ord. *Liliaceæ.*

A very ornamental herbaceous perennial, with pure white flowers. Introduced from Japan, in 1880. It requires a slight protection outside in winter, and is propagated by seeds or divisions of the roots.

Chiri'ta. A small genus of *Gesneraceæ*, natives of tropical Asia. The flowers of *C. lilacina* are very beautiful and are produced in great abundance; color pale blue with a white throat, ornamented with a large yellow blotch at the base. *C. sinensis* is also a very fine species. Culture similar to Gloxinia.

CHI

Chiro'nia. A classical name, after *Chiron*, one of the Centaurs, fabled to be the father of medicine. Nat. Ord. *Gentianaceæ.*

Green-house plants of short duration, and, consequently, requiring to be frequently raised from cuttings, which strike freely in sand. *C. floribunda*, with rose-colored flowers, and its variety, with white flowers, are the most desirable, and, with other species, are frequently raised from Cape seeds, the plants being all indigenous to the Cape of Good Hope. Introduced in 1756.

Chives. The popular name of *Allium Schœnoprasum*, the smallest of the Onion family, though one of the finest flavored. It is a hardy herbaceous perennial, native of Siberia, and of the easiest culture, growing freely in almost any soil or situation. Propagated by division, either in spring or autumn.

Chlida'nthus. From *chlideios*, delicate, and *anthos*, a flower; alluding to the delicate texture of the flowers. Nat. Ord. *Amaryllidaceæ.*

C. fragrans, the only species, a pretty, bulbous-rooted plant, which may be grown in the flower garden during the summer, when its bright yellow flowers are highly interesting. In winter it requires the same treatment as the Gladiolus. It is propagated freely by offsets, which should all be removed before planting, to enable the bulb to flower well. Introduced from Buenos Ayres in 1820.

Chlo'ris. From *chloros*, green; alluding to the color of the herbage. Nat. Ord. *Graminaceæ.*

A very extensive genus of grasses, including a few desirable species for the green-house. Among them is *C. radiata*, a pretty little annual species, with beautiful one-sided spikes of silky flowers, which give it a very curious appearance. There are several other species under cultivation, all useful for basket and similar work.

Chloro'galum. Soap-plant. From *chloros*, green, and *gala*, milk; referring to their green juice. Nat. Ord. *Liliaceæ.*

A genus of distinct, hardy bulbs, containing three species, all natives of California. *C. pomeridianum* has branched, panicled stems, with white, purplish-veined flowers, opening only after mid-day, whence its specific name, meaning "afternoon." The bulbs are sometimes used in California as a substitute for soap. Syns. *Phalangium pomeridianum*, and *Ornithogalum divaricatum.*

Chloro'phora. From *chloros*, greenish, and *phoreo*, to bear; alluding to the economic properties of *C. tinctoria.* Nat. Ord. *Urticaceæ.*

A small genus of milky trees, consisting of two species, one native of tropical Asia, and the other of tropical Africa. *C. tinctoria*, the Fustic Tree, yields yellow, brown, olive, and green dyes. Syn. *Maclura tinctoria.*

Chlo'rosis. A disease to which plants are subject, and often admitting no cure. It consists in a pallid condition of the plant, in which the tissues are weak and unable to contend against severe changes, and the cells are more or less destitute of chlorophyl. It is distinct from blanching, as it is also from the white color in ornamental-leaved plants, of which, however, it may be a modification. Plants may be affected by chlorosis as soon as the cotyledons make their appearance. The best culture will not always restore such plants to health. The most promising remedy is to water them with a very weak solution of sulphate of iron. An example of this condition is to be found in cases where the variegated leaves of Pelargoniums, etc., run to pure white without any green. In all such cases death is certain to ensue, unless the leaves again become more or less green.

CHO

Chloro'xylon. Satin-wood. From *chloros*, greenish-yellow, and *xylon*, wood. Nat. Ord. *Meliaceæ.*

C. Swietenia, the Satin-wood tree of the East Indies, attains a large size, and is a valuable timber tree. The wood is very handsome, light-colored, with a satin-like lustre, and sometimes beautifully mottled or curled in the grain, bearing some resemblance to box-wood, but rather deeper in color. The best kind of satin-wood, however, comes from the West Indies, and is the produce of a different tree, of which we have no description.

Chocolate. See *Theobroma.*

Choi'sya. Named after *M. Choisy*, a botanist of Geneva. Nat. Ord. *Rutaceæ.*

C. ternata, the only species, is a handsome white-flowered, sweet-scented shrub, growing about six feet high, quite hardy in the Southern States. It is a native of Mexico, an evergreen, and will succeed well with ordinary green-house treatment. It is increased by cuttings. Introduced in 1825.

Choke-Berry. The popular name of the fruit of the *Pyrus arbutifolia*, a common shrub from two to ten feet high, found in damp thickets.

Choke Cherry. See *Cerasus Virginiana.*

Choko. See *Sechium.*

Chondri'lla. From *chondros*, a lump; the plants bear lumps of gummy matter on the stems. Nat. Ord. *Compositæ.*

A genus of mostly uninteresting plants allied to *Lactuca* (Lettuce). *C. juncea*, a native of southern Europe, has escaped from the garden and become naturalized in some of the Southern States. It is a straggling, many-branched plant, and almost destitute of leaves when in flower. There are more than twenty species included in this genus, mostly weedy plants.

Chore'tis. From *choros*, to unite in chorus; this genus being an intermediate link between *Hymenocallis* and *Ismene.* Nat. Ord. *Amaryllidaceæ.*

An interesting genus of half-hardy bulbs from Texas and Mexico, requiring a rest from November until May. They grow freely in a light, sandy soil in the open border, or they may be grown in pots in the green-house, and for this purpose they should be started in March in a cool house heat and water to be increased with their growth. The flowers are very beautiful, pure white, with a green eye and a greenish stripe. Propagated by division of the bulbs.

Chori'zema. Nat. Ord. *Leguminosæ.*

This interesting green-house plant was first discovered in Western Australia by Labillardiere. This botanist was attached to the expedition sent by the French Government in search of the lost La Perouse, and on one of his excursions suffered much, with his party, for the want of water. At last they met with

CHIONODOXA LUCILLÆ.

CLARKIA.

CHELONE BARBATA.

CLERODENDRON THOMPSONÆ.

CHAMÆCYPARIS.

CHAMÆPEUCE CASABONÆ.

CHAMÆPEUCE DIACANTHA.

CHRYSANTHEMUMS (CHINESE).

CHRYSANTHEMUM (MRS. ALPHEUS HARDY).

CHRYSANTHEMUMS (JAPANESE).

CHRYSANTHEMUM (ANEMONE FLOWERED)

CINERARIA MARITIMA.

CHRYSANTHEMUM (SINGLE ANNUAL).

CINERARIA HYBRIDA.

springs that furnished an ample supply, near which he found this plant, which he named *Chorizema*, from *choros*, a dance, and *zema*, a drink; in allusion to the joyful feelings of the party on meeting with a supply of water. Of this really beautiful genus there are many species; the one most commonly met is *C. varium*, a rapid-growing and free-flowering kind. The flowers are of a bright orange red color, in long terminal racemes, flowering through the winter months. It is readily propagated by cuttings, which should be taken in February, and grown in small pots until the weather is suitable for planting out, as they should be grown in the border during summer. Before there is danger from frost, take up and pot in five-inch pots, in good rich loam and sand. Cut well back, and give it a warm, sunny situation, with liberal watering as soon as the new growth commences. It will begin to bloom in eight to ten weeks.

Christmas Rose. *Helleborus niger.*

Christopher Herb. *Actæa spicata* and *Osmunda regalis.*

Christ's Thorn. *Cratægus Pyracantha* and *Paliurus aculeatus.*

Chrysa'nthemum. From *chrysos*, gold, and *anthos*, a flower; alluding to the color of some of the flowers being yellow. Nat. Ord. *Compositæ.*

A large and important genus of herbaceous or slightly shrubby plants, of which the Ox-eye Daisy of our fields is a well known representative. Many species have been introduced from various countries of which *C. grandiflorum* from the Canary Islands, and *C. pinnatifidum* from Madiera, are of a shrubby habit, and flower during a large portion of the year. *C. frutescens* is "the Marguerite" or Paris Daisy of the florists, the flowers of which and others of a similar description are largely used in floral decorations. The variety "Etoile d' Or," and the double yellow sort called the "Golden Marguerite," are also very popular and are good subjects for the flower border in summer. *C. coronarium* from the Levant and *C. carinatum* called also *C. tricolor*, from Barbary, and their many varieties, are very ornamental border annuals. The species, however, which holds so high a rank, and with reason, among florists' flowers is *C. sinense* the *Chinese Chrysanthemum*, the value of which as an ornament of the flower-garden, the green-house or conservatory in the autumnal months, is well known and duly appreciated. Their cultivation is exceedingly simple.

If wanted to flower only in the open ground, all that is necessary is to plant them in the open border in any good ground, well enriched with manure. If possible, plant them in a warm sheltered spot, particularly in any section north of Baltimore, as, being the latest of all flowers of autumn, a better development will be had if planted in a place sheltered by a fence, hill or shrubbery. As they are usually grown in pots, they can be planted out any time from April to July, though preference may be given to May. They form an average width by October of two feet in diameter, if the tops are pinched off so as to make them bushy; they should be set out at about two feet apart each way. The "topping" or "pinching" back, as it is called, should not be done later than 1st of August, if much later it might destroy the flowering to some extent.

When wanted to be grown for green-house or house culture, the best plan for amateurs is to put each plant when received in a flower pot six, seven or eight inches wide and deep; plunge these pots to the rims in the open ground, level with the soil, treating exactly the same as recommended for planting in the open border, by pinching, etc. Care should, however, be taken to turn the flower pots round every eight or ten days, so as to prevent the roots getting through the bottom of the pot, the object being to confine the whole roots within the pot. This same plan is the best for amateurs who cultivate any kind of plant to grow in the house or green-house in winter.

The large flowers which are seen at the exhibitions are obtained by pinching off all the buds but one on each shoot, just as soon as the buds can be seen; "disbudded," as it is called, in this way, many kinds of Chrysanthemum flowers can be obtained six to nine inches in diameter. This is the method used to obtain all the fine flowers seen at the Exhibitions. It is deceiving, however, to those unacquainted with the plan, because a flower so obtained showing six or seven inches in diameter, if grown with half a dozen flowers on the same spray, would not be half the size. Hence amateurs who have selected special kinds from the cut flower tables at Exhibitions, must not be disappointed at finding them half the size when they flower, unless they use the same process of disbudding to obtain large flowers.

The Chrysanthemum is classed by growers into the following sections: Incurved, Ranunculus flowered or Exhibition, Recurved or Reflex-flowered, Anemone or Quilled-Aster flowered, Pompone, Small Reflexed or Chusan, Daisy-flowered, Quilled or Pin-feathered Japanese, and Large-flowered Japanese, in all of which there are many beautiful varieties.

Chrysanthus. Yellow flowered.

Chryse'is. A name sometimes given to *Eschscholtzia.*

Chrysoba'ctron. From *chrysos*, gold, and *bactron*, a wand; alluding to the magnificent racemes of *C. Rossii.* Nat. Ord. *Liliaceæ.*

This is a small genus from the Auckland and Campbell Islands, New Zealand, closely allied to *Anthericum.* They are found growing in marshy places, and will only succeed well with pot culture. The soil should be a fibrous loam, and the pots in which they are grown should be partly immersed in water. The flowers are bright yellow, produced in racemes, and are very beautiful. Propagated by division of the roots. Introduced in 1848.

Chrysoba'lanus. From *chrysos*, gold, and *balanos*, an acorn; in reference to the yellow fruit of some of the species. Nat. Ord. *Rosaceæ.*

A genus of stove or green-house shrubs, with simple leaves and white flowers borne in panicles; fruit edible. Natives of Florida.

Chryso'gonum. From *chrysos*, gold, and *gonu*, a knee, or joint; the flowers are generally produced at the joints of the stem. Nat. Ord. *Compositæ.*

C. Virginianum, the typical species and probably the only one in cultivation, is found in the Western States from Illinois south-

ward. It is a very pretty, hardy perennial, with yellow flowers, well worth a place in every herbaceous border.

Chrysophy'llum. Star Apple. From *chrysos*, gold, and *phyllon*, a leaf; referring to the color of the underside of the leaves. Nat. Ord. *Sapotaceæ*.

A genus of ornamental leaved evergreen trees. *C. imperiale*, a very showy and desirable species, is best known in cultivation as *Theophrasta imperialis*.

Chryso'psis. From *chrysos*, gold, and *opsis*, aspect; in allusion to the golden blossoms. Nat. Ord. *Compositæ*.

A genus of hardy annual or perennial North American plants, a greater portion of the species having all their parts covered with villous or silky hairs. *C. Mariana* grows about two feet high, and is quite ornamental when in flower. *C. villosa*, with numerous yellow flower heads half an inch in diameter, is said to be one of the commonest plants on the prairies of the Saskatchawan.

Chrysu'rus. From *chrysos*, gold, and *oura*, a tail; alluding to the compact heads of flowers. Nat. Ord. *Graminaceæ*.

A small genus of annual grasses, natives of the south of Europe and north of Africa. *C. aurea*, the only species of interest, is a very ornamental border plant of free growth, and is very useful for cutting. Native of the south of Europe and north of Africa. Syn. *Lamarkia*.

Chufa, or Earth Almond. *Cyperus esculentus*. A species of earth-nut used to fatten hogs, not to be confounded with Cocoa or Nut-grass, for though it belongs to the same class, Chufa is eradicated with great ease, and is never a pest. The nuts or tubers are larger and more elongated, and are very sweet and nutritious.

Chy'sis. From *chysis*, melting; in reference to the fused appearance of the pollen masses. Nat. Ord. *Orchidaceæ*.

A genus of very handsome Orchids, natives of Central America. The flowers are mostly white, or creamy white, heavily tipped with pink, the lip being beautifully marked with carmine and yellow. *C. aurea maculata*, has golden yellow flowers, with a large orange spot; lip white, with violet rays. When in a growing state they require liberal heat and moisture, and a cool, dry house when at rest. They are increased by division just as they commence a new growth. Introduced in 1830.

Cibo'tium. From *kibotion*, a small box; referring to the form of the spore vessels. Nat. Ord. *Polypodiaceæ*.

A small genus of very interesting Ferns related to *Dicksonia*. They are large and very handsome, and in some cases arborescent. The fronds are bi-pinnate, and often glaucous beneath. *C. Barometz* is believed to be the Tartarian Lamb, about which travelers have told so wonderful a tale. This "Lamb" consists merely of the decumbent, shaggy caudex of a kind of Fern, which is unquestionably this species. The "traveler's tale" is, that on an uncultivated salt plain of vast extent, west of the Volga, grows a wonderful plant, with the appearance of a lamb, having feet, head, and tail distinctly formed, and its skin covered with soft down. The lamb grows upon a stalk about three feet high, the part by which it is

sustained being a kind of navel. It turns about and bends to the herbage, which serves for its food, and pines away when the grass dries up and fails. The fact on which this tale is based appears to be, that the caudex of this plant may be made to present a rude appearance of an animal covered with silky, hair-like scales, and if cut into is found to have a soft inside of a reddish, flesh-colored appearance. When the herbage of its native haunts fails through drought, its leaves no doubt die, and both perish from the same cause, and independently of each other. From these appearances, the common people believe that in the deserts of Scythia there exist creatures half animal and half plant. The species are very interesting plants for the green-house, the fructification on the large bi-pinnate fronds being remarkably pretty. They are propagated by division, and by spores. Introduced in 1821.

Ci'cer. Chick-pea. Egyptian Pea. From *kykis*, force or strength; in reference to its qualities. Nat. Ord. *Leguminosæ*.

A genus of leguminous plants, consisting of annuals, perennials and undershrubs, forming one portion of the Vetch tribe. Some of the species are included in the genus *Astragalus*, by some botanists.

C. arietinum, commonly known as Chick, pea or Egyptian pea, is an annual plant-growing about a foot or more in height, a native of the south of Europe and India, where it is extensively cultivated for its seeds which form one of the pulses known under the name of "Gram," and which are greatly used by the natives as an article of food, being ground into meal, and either eaten in puddings or made into cakes. The leaves of this species consist of from three to seven pairs of leaflets with an odd one at the end, the leaflets being egg-shaped, and having their edges cut into very sharp teeth. Both leaves and stems are covered with glandular hairs containing oxalic acid, which exudes from them in hot weather and hangs in drops, ultimately forming crystals.

In Mysore the natives collect the dew from the "Gram" plants by means of muslin cloths, which become saturated with it. The liquid thus obtained, which is very acid, is preserved in bottles for use, and is regarded as a sure medicine in cases of indigestion, being administered in water. It is stated that the boots of a person walking through a dewy Gram field will be entirely destroyed by the pungency of this acid given out by the leaves.

Cicho'rium. Chicory or Succory. An ancient Egyptian name. Nat. Ord. *Compositæ*.

C. Intybus, the plant so extensively cultivated in Europe as a substitute for coffee, or for its adulteration, is commonly known as Wild Endive, and is found growing wild in most parts of Europe, being by far the most common in England. It is also naturalized in this country, and is common in neglected fields and along roadsides in neighborhoods long settled. Its flowers are bright blue, produced in great profusion in August and September. The plant grows in its wild state from one to three feet high, but under cultivation it often reaches six feet. The roots are fleshy, not unlike the Dandelion, to which family it belongs. For the adulteration of coffee, the

root is dried and ground, in which state it closely resembles ground coffee. The use of Chicory is common and undisguised, and many consider a mixture preferable to pure coffee, and buy the two, and mix to suit their own tastes. So great is the demand for it for this purpose, that, notwithstanding its cheapness and ease of culture, it is often adulterated by roasted wheat, rye, acorns, carrots, and other articles of a similar nature. The plants are largely cultivated in France for their leaves, which are blanched and used as a salad. A large-leaved variety, called the "Witloof," is much cultivated in Belgium, the plants being taken up in autumn, forced and blanched in a warm, dark place, and used either cooked or as a salad, forming what is called by the French "Barbe de Capucin." *C. Edivia* is the Endive, which see.

Cicu'ta. Cowbane, Water Hemlock. The ancient Latin name of the Hemlock. Nat. Ord. *Umbelliferæ.*

A small genus of biennial plants, very common in moist waste places. *C. maculata*, commonly known as Spotted Cowbane, somewhat resembles Sweet Cicely, and is often mistaken for it. The root is an active poison in its green state, but loses its virulent qualities when dried. It is a dangerous pest to the farmer, the herbage often proving destructive to cattle, when eaten by them, and many children have lost their lives by eating the roots, which they have mistaken for Cicely. *C. virosa*, a species common throughout Europe, furnished the poison given to Phocion and Socrates.

Cienko'wskia. Named in honor of *Professor L. Cienkowsky*, a Russian botanist. Nat. Ord. *Scitamineæ.*

C. Kirkii, the only described species, is a handsome and interesting plant, a native of eastern tropical Africa. Its blossoms, which are exceedingly attractive, are produced on a many-flowered scape, and are of a purplish-rose color, with a bifid golden spot in the center. It was introduced from Zanzibar in 1872. Syn. *Kæmpferia.*

Ciliæ. Somewhat stiffish hairs, which form a fringe on the margin of an organ, as those on the leaf of *Sempervivum tectorum.*

Ciliate. Fringed with hairs.

Cimici'fuga. Bug-bane. A genus of *Ranunculaceæ*, allied to Actæa. *C. racemosa*, Black Snake-root. The most showy and best known species is common in rich woods, from Maine to Wisconsin. It has tri-ternate leaves, and a stem three to eight feet high, bearing white flowers in elongated wand-like racemes. Several of the species, also, are natives of eastern Europe and Siberia.

Cincho'na. Named after the *Countess of Cinchon*, Vice-Queen of Peru, who was cured of a fever in 1638 by this remedy. Nat. Ord. *Cinchonaceæ.*

This genus yields the well-known Peruvian bark of commerce. It requires the protection of a warm green-house to preserve it in even moderate vigor. It is the type of an extensive and highly interesting order.

Cinchona'ceæ. A large and important order of trees, shrubs, and herbaceous plants, now regarded as a division or sub-order of *Rubiaceæ*, which see.

Cinera'ria. From *cineres*, ashes; in reference to the gray down covering the surface of the leaves. Nat. Ord. *Compositæ.*

There are upward of fifty species of this genus enumerated, varying in habit from the dwarf herbaceous plant, not rising more than half a foot, to the tall, soft-wooded, suffruticose species with a stature of five or six feet. The flowers of most of them are of a pale greenish yellow, though some have white, red, or purple flowers. *C. cruenta*, introduced from the Canary Islands in 1777, is the species from which all the florist's varieties have originated and which are among the most ornamental and useful plants that can be grown for green-house or conservatory decoration. A packet of seeds of a good strain will produce a great variety of colors, and as the plants are of easy culture, and do not require much heat, they should be grown by every one possessing a green-house where frost is excluded during winter; the plants flourishing best in a cool, rather moist atmosphere. The seeds may be sown from July till September, and potted off separately in a light rich soil, and are best grown in an ordinary garden frame or cold pit, facing north, till the advent of frost, when they should be brought into the green-house and repotted at different times, according to their size and forwardness, thus insuring a succession of bloom during the late winter and spring months. As the old plants are very difficult to keep over summer, and seedlings make much more vigorous plants than those summered over, it is better to sow a succession annually of a good strain, and when the plants have flowered throw them away. Throughout the entire existence of the plants they should be guarded from drought, and the attacks of green fly, to which they are very subject. Tobacco stems, cut up fine, and placed among the pots on the bench, form an excellent preventive for the latter. They should also be fumigated frequently, but not strongly, as although the fly may not be detected at first the plants may be infested beneath the young leaves. All Cinerarias are benefitted by applications of manure water, from the time the flower-heads are formed until they open. *C. Maritima*, a native of the south of Europe, has silvery gray foliage, downy beneath; it is much used for vases and hanging-baskets, as well as in ribbon gardening, etc.

Cinnabar. Scarlet touched with orange.

Cinnamo'mum. Cinnamon. Derived from the Arabic *kinamon*, cinnamon. Nat. Ord. *Lauraceæ.*

A genus of evergreen trees, well known as furnishing the Cinnamon of commerce. *C. Zeylanicum* is largely cultivated in Ceylon for its bark, which furnishes the best Cinnamon. The bark is stripped off the branches, when it rolls up into quills, the smaller of which are introduced within the larger, and then dried in the sun. The thinner the bark is, as a rule, the finer the quality. *C. Cassia* furnishes the Cassia bark, which is much like Cinnamon, but thicker, coarser, stronger, less delicate in flavor, and cheaper. It is commonly used in the adulteration of Cinnamon. Both species furnish what are known as Cassia buds, which are something like cloves, and, like them, consist of the unexpanded flower buds.

They possess properties similar to those of the bark. There are several other species of this genus that furnish aromatic barks, which are used in flavoring and in medicine.

Cinnamon Fern. The popular name of one of our native Ferns, *Osmunda Cinnamomea.*

Cinnamon Root. A common name for *Inula Conyza.*

Cinnamon Tree. See *Cinnamomum.*

Cinnamon Vine. A name given to *Dioscorea batatas.*

Cinque-foil, or Five-Finger. One of the popular names of *Potentilla,* which see.

Circæ'a. Enchanter's Nightshade. A classical name, after *Circe,* a celebrated enchantress, skilled in poisonous herbs. Nat. Ord. *Onagraceæ.*

A small genus of hardy herbaceous perennials, of but little interest; natives of Europe, and naturalized in many parts of this country.

Circinal. Resembling a circle.

Circinate. Bent like the head of a crosier, as in the young leaf of a Fern when it begins to grow.

Cirrhope'talum. From *cirrhus,* a tendril, and *petalon,* a flower leaf; in reference to the strap-shaped petals. Nat. Ord. *Orchidaceæ.*

An extensive genus of small, very curious epiphytal Orchids, natives of tropical Asia and the South Sea Islands. Their flowers are remarkable for having the lateral sepals prolonged into narrow streamers. . From this peculiar feature, and the fact that they occupy but little room, a few of the species have been introduced into the more general collection of Orchids. Propagated by division.

Cirrhose. Either furnished with a tendril, as the Grape-vine or the leaves of *Gloriosa superba;* or assuming the form and functions of a tendril, as the peduncles of *Clematis cirrhosa;* or where the tendrils are in some way remarkable, as the *Nepenthes.*

Ci'rsium. Common or Plumed Thistle. From *kirsos,* a swollen vein; in reference to being pricked by the spines. Nat Ord. *Compositæ.*

The Thistle family is too well known to need special mention. Two of the more troublesome species, *C. lanceolatum,* the common Thistle, and *C. arvense,* the Canada Thistle, are both natives of Europe, though perfectly naturalized in this country. There are many native species, the most conspicuous being *C. muticum,* Swamp Thistle, a perennial, common in moist woods and swamps, often growing as high as eight feet. This genus is now placed under *Cnicus* by some botanists.

Cissa'mpelos. A genus of *Menispermaceæ,* with the climbing character of the Ivy, *kissos* of the Greeks, and the clustered fruit of the vine *Ampelos.* The most important plant of the genus is the Velvet-leaf, or Caapeba, *C. Pareira,* a native of the West Indies, Central America, and India. The root of this plant furnishes the "Pareira brava" of the druggists, much used in medicine.

Ci'ssus. From *kissos,* ivy; in reference to their scrambling habit. Nat. Ord. *Vitaceæ.*

A genus of climbing plants, allied to *Vitis.* With a few exceptions, they are plants of but little interest to the florist. One of the species, however, *C. discolor,* is a plant remarkable for

the beauty of its foliage, and its adaptation to the hot-house. This species is a native of Java, and was introduced into England in 1854 by Messrs Rollison and Sons, of Tooting, and is described by Mr. Lowe as follows: "The leaves, which are six inches long and two and a half broad, are colored on the upper surface in the richest manner conceivable, the plant rivaling, in its beautiful foliage, the finest of the *Anæctochilus* family; the color being a rich green, clouded with white, peach, and dark purplish crimson, and covered with a metallic luster. The under side of the leaf is a rich brownish crimson. No description or painting can do justice to the beauty of these superb leaves when in perfection." This plant is a rapid grower, requiring a very rich soil and humid atmosphere, together with a high temperature, to bring it to perfection. It should be grown in a shaded house, and care should be taken not to syringe the plant, as water on the leaves destroys the metallic luster. It is readily increased by cuttings. The leaves are much valued by florists for their various work in baskets, designs, etc.

Cista'ceæ. A natural order of shrubs or herbs, often viscid, with simple entire leaves and showy flowers, found chiefly in the south of Europe and the north of Africa, and rarely in North or South America. They are usually resinous, and have a balsamic fragrance. *Helianthemum vulgare,* the common Rock Rose of England, has remarkably irritable stamens, which in sunny weather move on being touched. There are eight genera and about 190 species in this order; the best known of which are *Cistus, Helianthemum* and *Hudsonia.*

Cisterns. The superior value of rain-water for plant cultivation and general garden purposes is often overlooked when building greenhouses, as it is frequently conducted to drains when accommodation for its reception should be provided in the shape of cisterns. These are generally constructed with stones or brick, and coated inside with cement. Where the ground will admit of it, an excellent and cheap method is to have the sides of the cistern sloped as much as the soil will allow, and coat it one inch thick with a mixture of one part cement to three of gravel, finishing with a thin coating of pure cement. This forms a wall which when dry becomes as hard as iron, and will last for years. The size of cisterns should vary according to their intended use. If they are to furnish a daily supply of water, they need not be so large as for keeping a supply for summer only. The average depth of rain which falls in this latitude rarely exceeds six to seven inches for two months. The size of the cistern therefore need not exceed that of a body of water on the whole roof of the building seven inches deep. To ascertain this amount multiply the length by the breadth of the building, reduce this to inches, and divide the product by 231, and the quotient will be gallons for each inch of depth. Multiplying by seven will give the full amount for two months' rain falling upon the roof; divide by 31½, the quotient will be barrels. Cisterns intended only for drawing from in times of drought, to hold all the water that may fall, should be about three times the preceding capacity.

Ci'stus. Rock Rose. From *kiste,* a box; in ref-

erence to the form of the seed vessel. Nat. Ord *Cistaceæ*.

A genus of handsome shrubs, few of which are in cultivation. They are natives of southern and western Europe, north Africa, and the Canary Islands. Some of the species are elegant shrubs, having terminal flower stalks bearing one or more flowers, resembling in appearance those of the Dog Rose. They seldom last more than a few hours after expanding, and do not open except in sunny weather. The flowers are either white or rose-colored, with yellow or purplish marks at their base. Some of the species furnish a gum that is used in Turkey as a perfume and for fumigation; also supposed to be a specific for the plague. Propagated by seeds, layers, or cuttings.

Cithare'xylum. Fiddle-wood. From *kithara*, a lyre, and *xylon*, wood; in reference to the supposed fitness of the wood for musical instruments. Nat. Ord. *Verbenaceæ*.

A genus of tall-growing trees, common from Florida to Brazil. It furnishes a hard, durable wood, suited for various purposes in the mechanic arts. Its supposed use in the manufacture of musical instruments is a mistake. One of the species is called by the French *Fidèle*, for its durability in building. The English have corrupted the name to Fiddle-wood, by which name it is popularly known.

Citrinous. Lemon-colored.

Citron. (*Citrus medica.*) This is by some supposed to be the same species as the Lemon; it is a native of the forests of the north of India, but is extensively cultivated in southern Europe. In its wild state the tree grows to the height of about eight feet, erect and prickly, with long reclining branches, in general appearance resembling the Lemon. The fruit is from six to nine inches in length, ovate, with a protuberance at the top. There are two rinds, the outer thin, with innumerable glands, full of a most fragrant oil; the inner thick, white and fungous; it is this inner rind which is preserved and much used in confections, cake, etc.

Citrone'lla. Oil Plant. *Andropogon citratum.*

Citru'llus. From *Citrus*, in allusion to the Orange-like fruits. Nat. Ord. *Cucurbitaceæ*.

A small genus of trailing annual or perennial herbs. *C. colocynthis* furnishes the cathartic drug Colocynth, or Bitter Apple. *C. vulgaris* is the well-known Water Melon, which see.

Ci'trus. Orange Tree. Derivation of name unknown. Supposed to refer to *Citron*, a town in Judea. Nat. Ord. *Rutaceæ*.

The genus *Citrus* includes the Orange, Lemon, Lime, Citron, Shaddock, etc., all well deserving cultivation, both for their flowers and their fruit, but of which only a few kinds of Oranges and Lemons are generally grown. When grown for ornamental purposes in green-house or rooms, they all thrive well in a mixture of rich loam with a little rotted dung; but great care is necessary not to overpot them, or give them too much water when not in a growing state. The different species and varieties are generally propagated by budding, grafting and inarching on the common Lemon, which grows readily from seed. Oranges are also frequently raised from seed; but unless they are budded or grafted when about two years old, it will be many years before they flower. Orange Trees may also be propagated by cuttings, which are best from the old wood, struck in sand in a gentle bottom heat, and shaded. Plants raised in this manner flower and fruit much sooner than any others, but they scarcely ever attain a large size. Both the Orange and Lemon are such favorites in this country that scarcely a cottage, where a flower-pot or tub can be put into requisition, is without one or the other of these plants. When placed in unsuitable soil and carelessly watered, they seldom remain long in a good state of health. When they become sickly and yellow they should be turned out of the pots, a large portion of the old soil should be shaken from the roots, and they should be repotted in a mixture of fine loamy soil and rotted manure, with about one-fourth of charcoal dust, or powdered charcoal. There are numerous varieties of Oranges and Lemons grown for the fruit. Our markets were formerly supplied from the south of Europe, the Azores and the West Indies. Until within a few years the "Havana" was the most highly esteemed, but the Florida Orange is now the leading variety in the markets. The cultivation of the Orange in Florida commenced previous to 1820, but was carried on only to a limited extent for some years thereafter. From 1830 to 1835 many large groves were planted, nearly all of which were destroyed by the extraordinary frost of the latter year. The previous year there were trees at St. Augustine that produced each 14,000 oranges—a handsome revenue from a single tree. The dreaded effects of a frost almost entirely discouraged further plantings for a number of years. The cultivation of the Orange is now attracting greater attention in Florida than ever before. The Indian River country abounds in plantations that are yielding large and profitable crops. Some of the more scientific growers, from careful experiments and close observation, hold the opinion that frosts as severe as those of 1835 will not injure the trees if the precaution be taken to shade the trunks from the sun a short time, until the circulation of the sap is fully restored. Lemons, Limes and Shaddocks are also largely grown in Florida. In some parts of Texas and in California the cultivation of these fruits is being rapidly extended.

Cladra'stis Yellow Wood. Name of obscure derivation. Nat. Ord. *Leguminosæ*.

This genus includes several species, none of which are of special interest, excepting *C. tinctoria*, better known, perhaps, as *Virgilia lutea*, a native species indigenous in eastern Kentucky and southward. It is a small and handsome tree, with a compact, broadly rounded head, leaves compound like those of the Locust, of a light, pleasing green color, changing in autumn to a warm yellow. The flowers appear in June in pendulous racemes of great beauty, pea-shaped, white and fragrant, and are produced in such profusion as almost to clothe the tree, making it a beautiful object for the lawn. It is perfectly hardy, though of slow growth, and commences to flower when only a small shrub. Propagated by cuttings of the roots or by seeds. *C. amurensis*, the East Indian representative of the foregoing, is a tree reaching the height of forty feet,

bearing pinnate leaves and long, dense racemes of whitish flowers. It is a very ornamental tree, flowering freely in August, and being quite hardy, is a decidedly useful addition to the shrubbery or lawn. It was introduced from the Amoor Valley in 1880.

Clammy. Viscid, sticky.

Cla'rkia. In honor of *Captain Clarke*, who accompanied Captain Lewis in his journey to the Rocky Mountains. Nat. Ord. *Onagraceæ*.

A genus of hardy annuals, mostly from California. The whole of the species are indispensable to every flower garden where annuals are grown. The first sowing should take place in September; a few will survive the winter, and afford an early bloom in the following season. The next and principal sowing should be done in March, and a few more put in about the end of April, together with those transplanted, will continue a fine display through the whole summer. They grow in any soil, so that the situation is open or free from the drip of trees, and merely require to be thinned to about a foot from each other. This rule will apply to nearly all those that are known as "tender annuals."

Clary. *Salvia Sclarea.* A biennial plant of the order *Labiatæ*, a native of the south of France, Switzerland and of Italy. It has been under cultivation as a pot-herb, for seasoning soups, since early in the sixteenth century. It is grown in the same manner as the common sage, *Salvia officinalis.*

Clavate. Club-shaped, as where any organ, slender at the base, gradually enlarges towards the apex, as the filaments of *Thalictrum clavatum.*

Claw. The long, narrow base of some petals, analogous to the footstalk of leaves, as in Dianthus.

Clayto'nia. Spring Beauty. Named after *Dr. John Clayton*, an early American botanist. Nat. Ord. *Portulacaceæ.*

A genus of very pretty, hardy plants, of either annual or perennial duration. The former only require to be sown where they are to remain, and the latter succeed when planted in loam without further trouble. Their flowers are either white or pink of various shades. Several tuberous-rooted perennial species are found in moist woods in this country from Virginia westward to California. They do not differ materially from the annual species in flowering, and are worthy of cultivation.

Cleavers or Clivers. See *Galium.*

Cleis'toma. From *kleio*, to close, and *stoma*, a mouth; in allusion to the mouth of the spur being closed. Nat. Ord. *Orchidaceæ.*

A genus of East Indian epiphytal orchids, the several species of which, are beautiful plants, although most of them have small flowers, a fact that renders them unpopular with orchid growers. They require the same treatment as the *Aerides.*

Cle'matis. Virgin's Bower. From *klema*, a vine-branch; in reference to their climbing like a vine. Nat. Ord. *Ranunculaceæ.*

An extensive genus of handsome twining shrubs, natives of North America, Europe, Japan, and occasionally met with in Australia, Asia, and Africa. *C. Virginiana* is the well-

known Virgin's Bower, a species common in the woods and roadsides of New York southward. There are several other species common in this country. *C. flammula*, the sweet-scented Virgin's Bower, is much admired for its gracefulness, delicious fragrance, and poetical associations. For the many large-flowering varieties we are indebted to Sieboldt and Fortune, who discovered them in Japan. From the several species introduced by them very many varieties have been produced, among which is *C. Jackmanii*, a variety with large purple flowers, very showy, and deservedly popular. Some of the varieties are pure white, with both double and single flowers. The whole of them are quite hardy, though the young growth should be protected the first winter. They delight in a strong, rich soil, and for climbing up stumps of old trees, training to trellises, covering arbors or verandas, or planting to droop over amongst rock-work, no plants are more suitable or will make a more gorgeous display. Not only are they well adapted for running up all kinds of supports, festooning, etc., but many of the grand hybrid varieties, are equally suitable for trailing over the surface of the ground, and covering beds, either alone or associated with a few distinct foliaged plants. They are propagated by layering the young shoots in summer or by root grafting on some of our stronger growing native varieties. The shoots of the half-ripened young wood can also be freely rooted by cuttings during the summer months. *C. crispa*, a native species, is very popular, and deservedly so. The flowers, of medium size, are of beautiful purple, and deliciously fragrant; a characteristic absent from most of the class. *C. coccinea*, a recent introduction from Texas, presents us with a new and desirable color.

Cleo'me. From *kleio*, to shut; in reference to the parts of the flower. Nat. Ord. *Capparidaceæ.*

An extensive genus, consisting of tropical shrubs, annuals and biennials, which are not suitable for general cultivation. This genus, however, contains several very curious and pretty indigenous annuals, with white, rose, and purple flowers, natives of the Southern and Western States. They are all easy of cultivation. They should be started in a hot-bed, and the plants put out in the open border at the proper season for tender annuals.

Clerode'ndron. From *kleros*, a chance, and *dendron*, a tree; said to be owing to the uncertainty of the medicinal qualities. Nat. Ord. *Verbenaceæ.*

It is difficult to conceive more beautiful objects than several members of this genus when well cultivated. Cuttings taken off any time during summer root readily, or in winter in gentle heat, and should be kept in small pots through the succeeding winter, on a shelf or underneath a bench in the greenhouse. About the first of February repot them, giving them a liberal shift. The soil should be light and very rich. To flower freely, they require frequent shiftings from smaller into larger pots. With this treatment they can be made to bloom continually during the entire season. Old plants can be grown on with occasional shiftings, and make splendid plants for garden decoration during sum-

mer. They must, however, be grown in the shade. After flowering, water freely, in order that they may make a good growth; after which they should have partial sun to ripen the wood. If not wanted for winter flowering, remove the plants in the fall to a light cellar, free from frost, giving them through the winter just enough water to sustain life. In the spring, when all danger from frost is over, remove the plants to any desired position in the garden or on the veranda for another season of bloom. *C. Thompsonæ*, known also as *C. Balfourii*, introduced from Old Calabar in 1861, has bright crimson flowers disposed in large panicles, with pure white calyxes, is the best and most showy variety, and one we have seen in full bloom a number of years in succession, with the above treatment. It makes a valuable climbing plant for the greenhouse when so desired.

Cle'thra. White Alder, Sweet Pepperbush. From *klethra*, the Greek name of the Alder, which this genus somewhat resembles in foliage. Nat. Ord. *Ericaceæ*.

A genus of deciduous shrubs, several species of which are common in swamps and low places along our southern coast. *C. alnifolia* is common in the Middle States, and is remarkable for its sweet-scented flowers, which are borne in terminal racemes in July and August. Like many other of our native plants, it improves by cultivation, and will succeed well in a shrubbery border, however dry. It should be transplanted in early spring.

Cleye'ra. Named after Andrew Cleyer, M.D., a Dutch botanist of Batavia. Nat. Ord. *Ternstræmiaceæ*.

A genus comprising a few Indian and Japanese evergreen shrubs with Camellia-like leaves, and small axillary white or yellowish flowers, sometimes sweet-scented. *C. Japonica tricolor* is a very handsome variegated plant, with leathery, obovate, dark-green leaves, obliquely marked with bands of greyish-green, the broad, creamy-white margin, tinged of a bright rose-color, being very conspicuous in the younger foliage. Propagated by cuttings of the half-ripened shoots.

Clia'nthus. Glory Pea. From *kleios*, glory, and *anthos*, a flower. Nat. Ord. *Leguminosæ*.

A genus of magnificent, half-hardy shrubs from Australia, remarkable for their showy flowers, which are borne in terminal or axillary racemes. *C. puniceus*, the Parrot's Bill, is a magnificent, half-hardy, shrubby climber, with bright crimson flowers, a native of New Zealand. It grows very freely in rich loam if its roots are allowed sufficient room; and it generally thrives best when planted against the back wall of a conservatory. Cuttings planted in pots in the autumn, and kept in the shady part of the green-house, will be rooted by spring, when they may be planted in the open border. It is a plant that rarely flowers well in a pot, as it requires abundance of room for its roots, and grows rapidly, with rather succulent shoots, requiring abundance of water during the growing season, and very little at any other time. When grown in the open ground the juicy nature of its roots renders it a favorite food for snails, and when kept in the conservatory or green-house it is very apt to be attacked by the red spider. If

these enemies be kept away, and the plant be grown in rich soil, composed of equal parts of loam and thoroughly rotted manure, and well supplied with air, light, and water, with abundance of room for its roots, the rapidity of its growth and the splendor of its flowers will almost surpass belief; but unless these points are attended to, the plant is scarcely worth growing. *C. Dampieri*, Glory Pea, a species from the desert regions of Australia, is by far the most beautiful of the genus, either for the green-house or the border. Its cultivation is rather difficult. It does not grow to such dimensions as the former, but is of the same habit, and succeeds best when treated as an annual. The flowers are brilliant scarlet, and marked with a black blotch in the center. If the seeds are planted in May in the open border where they are to grow, in a rich, sandy loam, they will make magnificent plants, and flower freely from August until killed by frost. Five degrees of frost will not injure either the plants or the flowers. They will not at any time bear transplanting. Introduced in 1852.

Climber. A plant that grows upright upon trees, walls, etc., and supports itself by tendrils or by air-roots; an example of the former being the Grape Vine (*Vitis*), and of the latter the Virginia Creeper (*Ampelopsis*).

Climbing Fern. See *Lygodium scandens*.

Climbing Fumatory. See *Adlumia cirrhosa*.

Climbing Gentian. The genus *Crawfurdia*.

Climbing Hempweed. See *Mikania scandens*.

Climbing Hydrangea. See *Hydrangea scandens*. The name is also applied to *Schizophragma Hydrangeoides*.

Clinto'nia. Named in honor of De Witt Clinton, at one time governor of the State of New York. Nat. Ord. *Liliaceæ*.

Very beautiful and interesting stemless perennials, with creeping root-stocks, admirably adapted for the herbaceous border. They are found in rich woods from New York, southward, along the Alleghanies; one species, with deep rose-colored flowers is found in California. The genus very commonly known as *Clintonia* (Douglas), belonging to *Lobeliaceæ*, is more properly called *Downingia*, as the *Clintonia* of Rafinesque has priority over that of Douglas. See *Downingia*.

Clito'ria. Blue Pea, Butterfly Pea. From *kleio*, to shut up; in reference to its seeding within the flower long before the flower drops off. Nat. Ord. *Leguminosæ*.

Very handsome hot-house climbers, of graceful habit, the majority producing large, highly-colored flowers. *C. ternatea*, Syn. *Ternatea vulgaris*, introduced from India in 1739, is perhaps the finest, its lovely blue flowers receiving universal admiration. The whole of the perennial species succeed in rich loam, the annual kinds require the ordinary treatment of tender annuals. *C. Mariana* has a curious distribution, being found in the Southern States and Mexico, and appearing again in the Khasia Mountains in India, without being found in any intervening place. Propagated by cuttings or seeds.

Cli'via. Named after a *Duchess of Northumberland*, a member of the Clive family. Nat. Ord. *Amaryllidaceæ*.

Clivia nobilis, the only species, is a robust growing plant, which, once established, is very prolific of flowers. It grows well in sandy loam, if allowed the warmest part of the green-house, or a cool shelf in the hot-house. Its flowers, which are produced in a pendulous umbel, are of a delicate flesh color throughout the greater part of the tube, heightening to a deep red over the limb, the segments of which are bright green. It is increased by division of the roots. Native of the Cape of Good Hope. Introduced in 1823. Syn. *Imantophyllum Aitoni.*

Cloud-Berry. See *Rubus Chamæmorus.*

Cloud Grass. A common name for *Agrostis nebulosa.*

Clover. The common name for *Trifolium*, especially applied to the kinds cultivated for hay and pasture.

Cloves. The small bulbs formed within the mother-bulb of certain plants; such as garlic.

Clove Tree. *Caryophyllus aromaticus.* The Cloves of commerce are the dried unexpanded flower buds.

Club-moss. The common name of *Lycopodium clavatum.*

Club Root. A disease of the most destructive character, which frequently attacks Cabbage, Cauliflower, and other plants of the Brassica tribe. There is a great deal of misconception as to what is the cause of Club Root, it being attributed variously to wet land, dry land, hog manure, and several other causes that have got nothing to do with it whatever. All observing horticulturists who have had experience in the cultivation of Cabbage or Cauliflower, in any vicinity where there is an oyster shell deposit, know that the Club Root is never seen in any soil wherein there is an admixture of oyster shells. Thousands of acres on the shores of the Atlantic coast, on Long Island and in New Jersey, have just such soils, and there Cabbage crops have been grown for upward of fifty years successively without a sign of this disease; while in other soils only a few hundred yards distant, but having no mixture of oyster shell in the soil, it is found that Cabbages cannot be grown successively on the same soil without being attacked by Club Root. The inference is, therefore, plain, that the insect causing the disease called Club Root cannot exist in contact with the lime of the oyster shell; for that the disease is caused by an insect is well proven, as it is found that the excrescence known as Club Root, when examined, is found to contain a small, whitish, grub-like larva. It is evident that the growing crop of Cabbage invites in some way the perfect insect; for it is found, that if Cabbage is planted for the first time on new soil, it is rarely attacked by Club Root, while if planted the next year on the same soil, if lime is not present, it is almost certain to be attacked; and for this reason it is fair to presume that the perfect insect, allured by the Cabbage crop, deposits its eggs in the soil, which remain undeveloped until the next season, when they are hatched and attack the *roots* of the Cabbage plants, and thus bring on the disease. As an evidence of the correctness of this belief, we never fail to find, for example, if we plant alongside of each other, a crop of

Cabbage and a crop of Potatoes or Beets, that if the succeeding year we plant the whole with Cabbage, the part only that was planted with Cabbage the year before will be affected by Club Root, and the parts planted with Potatoes or Beets will escape. From our experience that Cabbage planted in soils mixed with oyster shells is exempt from Club Root, it is evident that the lime in the oyster shells is the agent destructive to the insect; therefore, in soils having no oyster shells, we have found if air-slacked lime is put on at the rate of 150 bushels to the acre after plowing, and well harrowed in, so as to mix it with the soil, that it in most cases will destroy the larvæ which causes Club Root. We have also found, from its containing large quantities of lime, that Bone Dust, used as a fertilizer at the rate of one to two tons per acre, is another almost certain antidote against Club Root. We would advise the use of lime after all plowing, but the Bone Dust should only be put on before the crop is *planted* in spring.

Club-rush or **Bulrush.** The common name of the genus *Scirpus*, a common marsh plant; also applied to *Typha latifolia.*

Clu'sia. Balsam Tree. Named in honor of *Clusius* of Atrois, author of *Historia Plantarium*, and many other works, 1526-1609. Nat. Ord. *Guttiferæ.*

A genus of evergreen trees or shrubs, often epiphytal, peculiar to tropical America, and growing in very humid hot places. Nearly sixty species are enumerated, many of which yield resin from the flowers, as well as from the trunks and branches.

Clustered. Where numerous similar parts are collected in a close, compact manner, as in the flowers of *Cuscuta.*

Cni'cus Benedictus. Blessed Thistle. An annual herb, with smoothish, clasping, scarcely pinnatifid cut leaves, and large bracted heads of yellow flowers. Native of Europe, scarcely naturalized southwards. The genus *Cirsium*, is included in the genus by some botanists.

Cobæ'a. Named in honor of *B. Cobo*, a Spanish botanist. Nat. Ord. *Polemoniaceæ.*

The two known species of these plants are elegant, fast-growing climbers, which may be grown in the green-house, the conservatory, or the garden in summer, where, from their rapid development, they are particularly desirable for covering walls, arbors, or other objects of a similar nature. It is preferable to treat them as annuals. The seed should be sown in March, in light, rich soil, on a gentle heat. The young plants should be potted separately into small pots, as soon as they can be handled with safety, using the same kind of soil, and, after being gradually inured to the temperature they are likely to be subject to in their after growth, may finally, when about a foot in height, be placed where they are to remain. It is seldom that seed is matured in the open air, but in a green-house or conservatory it is produced abundantly. *C. scandens*, the species in general cultivation, is a native of Mexico, and was introduced in 1792. A white flowered variety of *C. scandens* originated here in 1872, and one with variegated leaves in 1874.

CLEMATIS JACKMANII.

CLEMATIS COCCINEA.

CLEOME.

CLEMATIS CRISPA.

CLIANTHUS DAMPIERI.

COFFEA (COFFEE PLANT).

COIX LACHRYMÆ.

COCCINIA.

COCOS WEDDELLIANA.

COBÆA SCANDENS.

COCOS NUCIFERA (COCOA-NUT PALM).

COLEUS (VARIETIES OF).

COB

Cobu'rgia. Named after *Prince Leopold of Saxe-Coburg*, now King of Belgium. Nat. Ord. *Amaryllidaceæ*.

An interesting genus of half-hardy bulbs from South America, (mostly from Peru), requiring the same treament as *Sprekelia formosissima*. The flowers are mostly scarlet and very showy. They require a strong, rich soil. Propagated by offsets. Introduced in 1826, but rarely seen except in botanical collections.

Coca. See *Erythroxylon*.

Cocci'neus. A pure carmine color, slightly tinged with yellow.

Cocci'nia. Derivation of name not given. Nat. Ord. *Cucurbitaceæ*.

C. Indica, the only species and formerly called *Momordica monadelphia*, is a climbing shrub, common in the hedges of India. It has large white flowers. The fruit is oblong, marked with ten white lines. When ripe it is of a red color, and is used by the natives in their sauces. The leaves and other parts of the plants are used in medicine.

Coccocy'pselum. From *kokkos*, fruit, and *kypsele*, a vase; referring to the form of the berries. Nat. Ord. *Rubiaceæ*.

A small genus of soft-wooded trailing plants from the West Indies and Central America. *C. repens* is interesting from its bluish-purple berries. As a genus, they do not occupy a prominent place either as ornamental or useful plants.

Coccolo'ba. Sea-side Grape. From *kokkos*, a berry, and *lobos*, a lobe; in reference to the fruit. Nat. Ord. *Polygonaceæ*.

Most of this genus are tropical evergreen trees, interesting and beautiful, but too large for ordinary green-house culture. *C. platyclada* is a dwarf species, with curious flat stems, growing from five to ten feet high. It succeeds well planted in an ordinary flower border, and is useful in filling large vases and rustic tubs, or for planting in rock-work. It is propagated freely by cuttings. The flowers are small and white, produced at the axils of the leaves. The correct name of this plant is now given as *Muehlenbeckia platyclada*, which see.

Co'cculus. Derived from *kokkos*, the systematic name of the Cochineal; given to this genus because most of the species bear scarlet berries. Nat. Ord. *Menispermaceæ*.

An extensive genus of climbing shrubs, remarkable for their medicinal properties. With one exception the species are all natives of the East Indies. *C. Carolinus*, common in woods and thickets from North Carolina to Florida, is a very handsome climber, remarkable for its racemes of white flowers, which are succeeded by clusters of bright scarlet berries, that remain on the vine all winter. This is one of the most beautiful climbers under cultivation, and will succeed well where there is not more than ten or twelve degrees of frost. It is increased by cuttings or from seeds. Syn. *Wendlandia*.

Co'cculus Indicus, Plant. See *Anamirta* (*Menispermum*) *cocculus*.

Co'chlearia. From *cochlear*, a spoon; the leaves of most species are hollowed, like the bowl of a spoon. Nat. Ord. *Cruciferæ*.

COC

A genus of annual or perennial herbs, usually smooth and fleshy. There are about twenty-five species widely distributed over the temperate and cold regions of the northern hemisphere. *C. officinalis* is the Scurvy Grass, valuable as an anti-scorbutic. *C. Armoracea* is the Horse Radish, which see.

Cochleate. Twisted in a short spire, resembling the convolutions of a snail-shell, as the pod of *Medicago cochleata*, or the seed of *Salicornia*.

Cochlioste'ma. From *cochlios*, spiral, and *stema*, a stamen. Nat. Ord. *Commelynaceæ*.

A genus of green-house perennials allied to *Tradescantia*, natives of Brazil. They are rather curious in form, having contracted stems and tufted leaves, like those of a *Bromelia*. The flowers are blue, and borne on branched clusters. Of the two species in cultivation, one is small and the other, *C. Jacobianum*, is very large and showy, equally valuable from a horticultural point of view, as it is interesting from its peculiar structure. They are increased by division. Introduced in 1866.

Cockle. The common name of *Lychnis Githago*, a troublesome weed in grain fields. Introduced from Europe.

Cocklebur or **Clotbur.** The popular name of *Xanthium*, a coarse annual weed, common on the sea-coast, especially southward.

Cockscomb. See *Celosia*.

Cock's-Foot Grass. *Dactylis glomerata*.

Cock's-Spur Thorn. *Cratægus Crus-galli*.

Cocoanut. The nut of *Cocos nucifera*, which see.

Cocos. Cocoanut Tree. From the *Portuguese* word, *coco*, a monkey; in reference to the end of the nut resembling the head of the monkey. Nat. Ord. *Palmaceæ*.

C. nucifera, the well-known Cocoanut Tree, is the type of this genus of Palms, to which, in addition, about a dozen other species belong. They mostly form tall, graceful trees, and the majority of them are natives of the tropical regions of America, one only, the common Cocoanut, being found in Asia or Africa. The trees grow to a great height, with a straight trunk, and, like almost every species of the Palm tribe, without branches. The leaves are from twelve to fifteen feet long. The flowers come out round the top of the trunk in large clusters, inclosed in a sheath, and the nuts succeed them, commonly ten or twelve together. There are few trees more extensively or variously useful. The leaves are employed as thatch to cover houses, and to make mats either for sitting or lying upon. The leaf, when reduced to fine fibers, is the material of which beautiful and costly carpets are made for those in the higher ranks; the coarse fibers are made into brooms. After these useful materials are taken from this leaf, the stem still remains, which is about three inches thick, and furnishes firewood. The wood of this Palm, when fresh cut, is spongy, but becomes hard after being seasoned, and assumes a dark brown color. On the top of the tree a large shoot is produced, which, when boiled, resembles Broccoli, but is said to be of a more delicate taste; and though much liked, is seldom used by

the natives, because, on cutting it off, the pith is exposed, and the tree dies. Between this cabbage-like shoot and the leaves there spring several buds, from which, on making an incision, there distills a juice differing but little from water, either in color or consistence. It is the employment of a certain class of men to climb to the top of the trees in the evening, with earthen pots tied to their waists, which they fix there to receive the juice, which is regularly carried away before the sun has had any influence upon it. This liquid is sold at the bazaars by the natives under the name of toddy. After being kept a few hours it begins to ferment, acquires a sharp taste, and a slightly intoxicating quality, in which state it is drank by the natives and poorer classes with avidity. It is also used as yeast, for which it forms an excellent substitute. By boiling it a coarse kind of sugar is obtained; and by distillation it yields a strong, ardent spirit, which is sold at a low price, constituting it a most pernicious beverage. The outside rind or husk of the fruit yields the fiber from which the well-known Cocoanut matting is manufactured. In order to obtain it the husks are soaked in salt water for six or twelve months, when the fibre is easily separated by beating, and is made up into a coarse kind of a yarn called *coir*. Besides its use for matting, it is extensively used in the manufacture of heavy cordage for ship's cables. It is also used for various kinds of brushes, and for stuffing mattresses, cushions, etc. The next important product of the fruit is the oil, which is procured by boiling and pressing the white kernel or albumen of the nut. It is liquid at the ordinary temperature in tropical countries, and while fresh is used in cooking. By the time the nuts reach this country the albumen is solid, and has frequently a rancid smell or taste. When green, or first gathered, this substance is easily separated by pressure into what is termed stearine, which is made into candles, and a very good oil, used for burning in lamps. As an article of food the kernel is of the greatest importance to the inhabitants of the tropics. In the Laccadives it forms the chief food, each person consuming four nuts per day, and the fluid, commonly called milk, affords them an agreeable beverage. While young they yield a delicious substance resembling blanc-mange. As the nut ripens, the milk is gradually absorbed, or hardens into the white, fleshy substance that we find when we receive them. The Cocoanuts brought to this market are chiefly from Central America, where they are gathered from the interior by the natives, brought to the coast, and sold to dealers who make that trade a specialty. *Cocos Weddelliana*, introduced from South America, is the most ornamental of this group, and one of the most graceful Palms in cultivation. For dinner-table decoration there is no Palm to compare with it. It is very dwarf, with finely-divided foliage, which is recurved with exquisite grace. It deserves a place in the smallest collection of plants. The *Cocos* are all propagated from seed, and require a temperature of about 70° for the germination of the seed and the growth of the plants.

Codiæ'um. From *Codebo*, the Malayan name for one of the species. Nat. Ord. *Euphorbiaceæ.*

By a number of authorities, the greater part of the plants known and described as *Crotons*, are placed under this genus. They have doubtless all originated from two or three species, and though popularly known as *Crotons*, belonging, as they do, to a different section of *Euphorbiaceæ*, they should come under this genus.

Codlins and Cream. A popular name of the flowers of the *Narcissus Incomparabilis;* also for *Epilobium hirsutum.*

Cœlia. From *koilos*, hollow; in allusion to the pollen masses. Nat. Ord. *Orchidaceæ.*

A genus of very curious and pretty stove-house orchids, natives of the West Indies and Guatemala. *C. Bauerianа* has pretty, sweet-scented white flowers, and has been in cultivation since 1790.

Cœlo'gyne. From *koilos*, hollow, and *gyne*, a female; in reference to the female organ or pistil. Nat. Ord. *Orchidaceæ.*

An extensive genus of very beautiful Orchids, natives of sub-tropical Asia. Most of the species are great favorites with Orchid growers, on account of their remarkable flowers, which are produced in great numbers with but very little care or trouble. *C. cristata*, one of the finest of the genus, has beautiful ivory-white flowers with a blotch of yellow on the lip. "This is a magnificent species, which any one having a green-house can grow. Of late years it has been grown in great perfection, and it is as easy to have plants a foot or more in diameter, producing hundreds of flowers, as it is to grow Verbenas. Give plenty of water when growing, free circulation of warm air, and not too much heat."—*Rand.* It may be grown in moss in pots, and is propagated by division. Introduced in 1837.

Coffe'a. Coffee Tree. From *Coffee*, the name of a province in Narea, in Africa, where it grows in abundance. Nat. Ord. *Rubiaceæ.*

The coffee of commerce is the fruit of an evergreen shrub, or low-growing tree, rarely attaining a height of twenty feet, which it will only acquire under the most favorable conditions of soil and climate, the usual height being from ten to twelve feet. All of our coffee is the fruit of one species. Some botanists, however, claim there are two; but the opinion that the different sorts are merely varieties, resulting from soil, climate, and mode of culture, is the one generally entertained. *C. Arabica*, the parent of the numerous varieties in cultivation, is a native of Arabia Felix and Ethiopia, and was first introduced to the notice of Europeans by Ranwolfius in 1573; but Alpinus, in 1591, was the first one who scientifically described it. The Dutch were the first to introduce the plant into Europe. Having procured some berries at Mocha, which were carried to Batavia, and there planted, a specimen was sent to Amsterdam, in the year 1690, by Governor Wilson, where it bore fruit, and produced many young plants. From these the East Indies, and most of the gardens of Europe, were furnished. In 1714 a plant was presented by the magistrates of Amsterdam to the French King, Louis XIV. This plant was placed at Marley, under the care of the celebrated Jussieu, who afterward gave a plant to Desclieux, a young officer in the French navy, who took it to Martinique, from which the extensive plantations of the

French West Indies were established, and whence were also derived all the coffee plants in Mexico and South America. The use of coffee was known in Arabia, where the plant is supposed to have been indigenous, long before the periods mentioned. All authorities agree in ascribing its introduction to Megalleddin, a Turkish doctor of divinity, of Aden, in Arabia Felix, who had become acquainted with it in Persia, and had recourse to it medicinally when he returned to his own country. The progress which it made was by no means rapid at first, and it was not until the year 1554 that coffee was publicly sold in Constantinople. Its use had, in the meanwhile, been much checked by authority of the Syrian government, on the ground of its alleged intoxicating qualities; but more probably because of its leading to social and festive meetings incompatible with the strictness of the Mahommedan discipline. A similar persecution attended the use of coffee soon after its introduction into the capital of Turkey, where the ministers of religion, having made it the subject of solemn complaint that the mosques were deserted while the coffee-houses were crowded, these latter were shut up by order of the mufti, who employed the police of the city to prevent any one from drinking coffee. This provision it was found impossible to establish, so that the government, with a strict eye to business, laid a tax upon the sale of the beverage, which produced a large revenue. The Turks are most inveterate coffee-drinkers, a fact that may in a great measure be accounted for by the strict prohibition which the Moslem religion lays against the use of wine and spirituous liquors. So necessary was coffee at one time considered among the Turks, that the refusal to supply it in moderate quantities to a wife was reckoned among the legal causes for divorce. Coffee cannot be cultivated to advantage in a climate where the temperature at any time descends below fifty-five degrees of Fahrenheit. The trees thrive best in new soils on a gentle slope, where water will not lodge about the roots. In exposed situations it is necessary to plant rows of tall trees, at proper intervals, to moderate the scorching heat of the sun. From Ellis' History of Coffee we learn the following facts: "It is well known that coffee raised in the West Indies does not equal in flavor that produced in Arabia and other parts of the East; and it is commonly imagined that this inferiority is principally owing to local causes, and is, therefore, incapable of being remedied. The seed of the West Indian coffee, from growing in a richer soil and more humid atmosphere, is larger than that of Arabia; though there is reason for believing that the superior quality of Turkey and East Indian coffee is not altogether to be referred to the influences of soil and climate, but depends, in part at least, upon the age to which the seeds are kept before they are brought into consumption. Trees planted in a light soil, and in a dry situation, produce smaller berries, which have a better flavor than those grown in rich, flat, and moist soils. The weight of produce yielded by the latter is, however, double that obtained from the former. The drier the soil and the warmer the situation, the better will be the coffee produced, and the sooner it will acquire a flavor."

He says further: "The more common or poorest quality of South American coffee will, in the course of ten or fifteen years, be as good, and have as high a flavor, as the best we now have from Turkey; but due care should be taken to keep it in a dry place, and to preserve it properly. Small-grained coffee, produced in a dry soil and warm situation, will be matured in three years. The trees begin bearing when they are two years old; in their third year they are in their full bearing. The produce of a good tree is from one and a half to two pounds. The aspect of a coffee plantation during the period of flowering is very interesting. In one night the blossoms expand so profusely as to give the trees the appearance of being covered with snow. This period lasts but one or two days." The amount of labor required to secure a crop of coffee is very great, and is chiefly performed by negroes. When the trees are in full bearing, an industrious man will pick three bushels of berries in a day, and each bushel of ripe berries will yield ten pounds of merchantable coffee. Two systems are employed in curing coffee: A common plan is to expose the berries to the sun in layers of from five to six inches deep, which will cause the pulp to ferment in a few days, after which it takes about three weeks to dry sufficiently for the husks to be separated from the seeds by a mill. Other planters remove the pulp as soon as gathered, by a mill constructed for the purpose, which bruises the berries and separates the pulp by washing, after which it is dried in the sun, and the husks removed, as in the former process.

Cohering. Connected.

Cohosh. A popular name for *Actæa spicata.*

Cohosh. Blue. A name applied to *Caulophyllum thalictroides.*

Coix. Job's Tears. A name applied by Theophrastus to a reed-leaved plant. Nat. Ord. *Graminaceæ.*

A genus of perennial grasses that succeed well under ordinary cultivation in the garden. *C. lachryma,* a native of the East Indies, from whence introduced in 1596, will do well treated as an annual. It is considerably grown for its seeds, which are popularly known as *Job's Tears.* Mothers, in the last century, thought their children could not be safely carried through teething without a string of Job's Tears around their necks.

Cola. The native name. Nat. Ord. *Sterculiaceæ.*

C. acuminata, the only cultivated species, was introduced from tropical Africa in 1868, under the name of Cola, Kola or Goora nuts. The seeds of this tree are universally used as a condiment by the natives of western and central tropical Africa, and likewise by the negroes in the West Indies and Brazil, by whom the tree has been introduced into those countries. They are also used in medicine, and to render putrid water wholesome. At the present writing (1889) much interest is exhibited in this nut as an ingredient in a new condensed form of rations for military purposes, combining, it is claimed, two special advantages of great importance. First, its bulk and weight being very much less than those of ordinary rations, it is much more easy to carry on a forced march, thus relieving the marching force of

the impediment of a food-supply train, and secondly, that it greatly increased both the muscular strength and wind of the soldier so that he could march more rapidly and steadily and not become so easily tired out or discouraged. It has also been ascertained that horses like it, which is a very important point, and that its alimentary power is equal to that of twice its weight in oats, and that it plainly exerts an exciting action on the nerves and muscles of the horses.

M. Elisée Reclus, in several parts of his "Nouvelle Géographie Universelle," mentions the Kola nut. He states that the tree is held sacred by the natives, who, by using it, are enabled "to stand hunger and thirst for a long while, and be shielded against fevers." There are two kinds of the tree. One bears white and the other red nuts. If the former are sent by a chief they mean peace, if the latter, war and the shedding of blood. When in 1879, two French explorers, Moustier and Zerafel, who were trying to find the head-waters of the Niger, arrived in sight of the hills from which this great Soudanese river emerges, and were within four miles of the main source, they had to come to a halt. The negro sovereign of that region forbade them to advance any nearer and sent them a red Kola nut, as a token that if they disregarded his notification to stop, blood would flow.

The French Alpine Club uses the Kola nut, and recommends it to mountain climbers. No doubt it might often be made to serve a good purpose in our country.

Colax. From *Colax*, a parasite. Nat. Ord. *Orchidaceæ*.

A small genus of very beautiful Orchids, taken from *Maxillaria*. They are natives of Brazil and may be grown in moss and in moderate heat. *Lycaste* was formerly included in this genus.

Co'lchicum. Meadow Saffron. Named after Colchis, its native country, in Asia Minor. Nat. Ord. *Melanthaceæ*.

A hardy bulbous-rooted plant, which will grow well in the border. The flowers come up through the ground without the leaves in autumn, and closely resemble those of the Crocus. The leaves do not appear till the following spring, and great care should be taken of them, as, if they should be injured so as to prevent them from exercising their proper functions in maturing the sap, the bulb will not flower the next autumn. The genus is universally poisonous and is valued for its medicinal properties.

Cold Frame. This is the term used for the low glass structure in use for protecting such plants as are not sufficiently hardy to withstand the winter in the Northern States. They are used to protect Cabbage, Cauliflower, Lettuce, Parsley, etc., among vegetables, and Violets, Pansies, Daisies, Primroses, Carnations, Auriculas, etc., among flowers. The boxes or frames used are simply two boards, running parallel with each other, and nailed to posts to secure them in line, the one at the back or north side being ten to twelve inches in height, and that for the front, or south side, being seven or eight inches, which gives pitch enough to carry off the rain and to catch the sun's rays. The width between these lines of boards should be enough to take the length of

a six-foot sash, which is the most convenient size. All the plants of the character above-named can be protected in the district of New York, where the thermometer rarely falls lower than 8° below zero, with the glass alone; but in colder sections the protection of light shutters in addition, over the glass, will be necessary. In the Southern States, in districts where the thermometer never falls lower than 15° above zero, many of the hardier green-house plants, such as Fuchsias, Geraniums, Azaleas, Camellias, Verbenas, Abutilons, etc., may be kept equally well in cold frames, as our so-called hardy plants are kept at the north.

Cold Grapery. See *Vitis*.

Cold Pits. Are identical with cold frames, except than an excavation of from two to four feet is made below the general level of the ground, so as to admit of larger plants being placed in them. The sunken pit, however, is a better protection than the cold frame on the surface; for, when sunk to the depth of two or three feet, and covered with glass, it will resist a much heavier frost than the frames on the surface. Care must be taken that both cold frames and cold pits are well drained, either from the nature of the soil, or otherwise, as water standing in them would be destructive to the plants, whether planted in the soil or growing in pots.

Co'lea. Named after *General Cole*, Governor of the Mauritius. Nat. Ord. *Bignoniaceæ*.

There is but one species of this genus, which is found in Madagascar, Mauritius, and the adjacent islands. It is an exceedingly ornamental green-house shrub, producing large clusters of bright yellow flowers in August and September. Propagated by cuttings. Introduced in 1839.

Coleone'ma. A beautiful genus of *Rutaceæ*, from the Cape of Good Hope, related to Diosma, and consisting of very ornamental heath-like shrubs with sharp linear leaves and white flowers. Of the four known species *C. Album* is the most showy and best known.

Coleus. From *koleos*, a sheath; referring to the way the bottom of the stamens or anther threads are combined. Nat. Ord. *Labiatæ*.

This somewhat extensive genus are natives of Asia and Africa. It consists of annuals, sometimes perennials, and rarely shrubs, but none of value as flowering plants but of general use in ribbon gardening, massing, or any situation where striking effect is wanted. From the original species many varieties, remarkable for their beautiful foliage, have been produced by florists. They are readily propagated by cuttings. The species were introduced about 1825.

Colewort. A name applied to varieties of the Cabbage before the hearts become solid.

Colic Root. See *Aletris*.

Coliseum Ivy. See *Linaria*.

Colla'nia. Derivation of name unknown. Nat. Ord. *Amaryllidaceæ*.

A beautiful free-flowering green-house perennial, allied to *Alstrœmeria*, which it resembles. The species are natives of Peru and will do well in this climate with the protection of a frame. The flower stems are erect, somewhat rigid, slightly curved at the top, and

terminated with an umbel of large, pendulous flowers, upward of two inches long; sepals orange red, tipped with black; petals yellow, tipped with green. Propagated by offsets.

Collar. The ring upon the stipe of an Agaric. Also applied to the neck or line of junction between the root and stem of a tree, etc.

Collards. (*Brassica oleracea.*) This is a curled-leafed variety of Cabbage grown for "greens," but mostly in the Southern States. It attains a height of from six to eight feet. This stem is an inch and a half to two inches in diameter, and is used to a considerable extent in Europe for making light walking canes.

Colle'tia. Named after *M. Collet*, a French botanical writer. Nat Ord. *Rhamnaceæ.*

A genus of singular shrubs inhabiting Chili, Peru and Mexico. They are much branched, and scantily furnished with minute leaves, having spines which stand at right angles with the stem in alternate pairs. The flowers are yellow or white, and are produced in axillary clusters. The species are but half-hardy in this latitude.

Colli'nsia. In honor of *Z. Collins*, Vice-President of the Academy of Natural Sciences, Philadelphia. Nat. Ord. *Scrophulariaceæ.*

A genus of free-flowering Californian annuals of great beauty, and deserving of cultivation, being well adapted for massing and for mixed borders. For massing, the seed should be sown thick, so as to thin out to four inches apart, which will give the bed an appearance of a solid mass. For this purpose the dwarf species are to be preferred, the taller ones being more suitable for mixed borders. There is a great variety of color, white, purple and crimson predominating. First introduced in 1826.

Collinso'nia. Horse-Balm. Named in honor of *Peter Collinson*, a well-known patron of science and correspondent of Linnæus, who introduced it into England. Nat. Ord. *Labiatæ.*

A genus of strong-scented perennial herbs, common throughout the United States. None of the species has any special merit that would warrant its cultivation.

Collo'mia. From *kallo*, glue; referring to the glue which surrounds the seeds. Nat. Ord. *Polemoniaceæ.*

A genus of hardy annuals from California. They are showy plants, but too coarse and weedy in appearance to entitle them to a place in choice collections. They grow readily from seed, and when once planted need no care except to exterminate the surplus quantity.

Coloca'sia. Elephant's Ear. From *kolokasia*, the Greek for the root of an Egyptian plant. Nat. Ord. *Aroideæ.*

An interesting genus closely allied to the *Caladium*, most of the species being known under that name. *C. macrorhiza* is a beautiful green-house plant, remarkable for the bold and distinct markings of the foliage, consisting of light green and pure white. *C. odorata* has large cordate leaves, with rounded lobes, and forms a stem-like root, and a stock often two feet or more in height. It is an excellent plant for summer decoration. *C. esculenta* is a favorite plant for single specimens on the lawn, or for borders of a sub-tropical group, in

a deep, rich soil. If freely watered, the leaves will sometimes grow four feet in length by three feet in width. This species and *C. antiquorum* are grown extensively in the Sandwich Islands for food, and are called by the natives *Taro*, the root being eaten like Potatoes, and the leaves cooked like Spinach. The roots are also eaten by the negroes in the Southern States, and are called by them *Tanyah.* See *Taro.*

Co'locynth. *Cucumis* (*Citrullus*) *Colocynthus.* This is one of the gourd family inhabiting various parts of Turkey, although it is not well ascertained in what country it is indigenous. It is an annual trailing and climbing plant, like the garden cucumber. The fruit is a round gourd, about the size of an orange, divided into three cells, abounding with a pulpy matter, and containing numerous seeds. The pulp is exceedingly bitter; a decoction of this pulp in water, and then evaporated, forms the well-known extract of *Colocynth.*

Cologa'nia. In honor of the family of *M. Cologan*, of Port Oratavo, in Teneriffe, from whom the men of science, visiting that island, experienced the greatest hospitality. Nat. Ord. *Leguminosæ.*

A small genus of evergreen climbers, allied to the *Clitoria*, and requiring the same treatment. The flowers are of a lively purple, generally in pairs at the axils of the leaves. They are natives of Mexico. Introduced in 1827.

Color, Colored. Botanically, this term is used to denote any color except green. In technical botany white is regarded as a color, but green is not.

Color in Flowers, The Law of. This matter is referred to in the hope that it may be the means of saving some readers, not only from being duped and swindled by a class of itinerant venders who annually reap a rich harvest in disposing of impossibilities in flowers, but that they may be assured of the utter improbability of their ever seeing such wonders as these fellows offer, thereby saving them from parting with money for worthless objects, and from the ridicule of their friends who are already better advised. This subject cannot be too often brought before our amateur horticulturists. Warnings are given year after year in leading agricultural and other journals devoted to gardening, yet a new crop of dupes is always coming up, who readily fall victims to the scoundrels who live upon their credulity. Not a season passes but some of these swindling dealers have the audacity to plant themselves right in the business centres of our large cities, and hundreds of our sharp business men glide smoothly into their nets. The very men who will chuckle at the misfortunes of a poor rustic when he falls into the hands of a mock auctioneer, or pocketbook dropper, will freely pay ten dollars for a rose plant of which a picture has been shown them as having a blue flower; the chance of its coming blue being about equal to the chance that the watch of the mock auctioneer will be gold. It has long been known among the best observers of such matters, that in certain families of plants particular colors prevail, and that in no single instance can we ever expect to see *blue, yellow, and scarlet colors in*

varieties of the same species. If any one at all conversant with plants will bring any family of them to mind, it will at once be seen how undeviating is this law. In the Dahlia we have scarlet and yellow, but no approach to blue, and so in the Rose, Hollyhock, etc. Again, in the Verbena, Salvia, etc., we have scarlet and blue, but no *yellow!* In the Hyacinth we have blue and a fairly good yellow, but no scarlet. Some have contended that in this family we have the combination, for of course we have crimson; but crimson is not scarlet any more than blue is purple. If we reflect it will be seen that there is nothing out of the order of Nature in this arrangement. We never expect to see among our poultry, with their varied but sombre plumage, any assume the azure hues of our spring Blue-bird or the dazzling tints of the Oriole; why, then, should we expect Nature to step out of what seems her fixed laws, and give us a blue Rose, a blue Dahlia, or a yellow Verbena?

Colt's Foot. See *Tussilago.*

Columbine. See *Aquilegia.*

Columbo. American. See *Frasera.*

Column. The combined stamens and styles forming a solid central body, as in Orchids, etc.

Colu'mnea. Named after *Fabius Columna,* an Italian nobleman. Nat. Ord. *Gesneraceæ.*

A small genus of curious and beautiful green-house plants, natives of New Grenada. The species are divided between climbers and shrubs. The flowers of the climbers are mostly yellow and orange; of the shrubs, rose and purple. They are propagated by cuttings, and should be carefully watered. They will grow on blocks of wood, with moss, suspended in the green-house. Introduced in 1850.

Colu'tea. Bladder-senna. From *koloutea,* a name adopted from Theophrastus. Nat. Ord. *Leguminosæ.*

C. arborescens, the common bladder-senna, is a hardy deciduous shrub, with delicate Acacia-like leaves of a warm light-green color. Its flowers are small, butterfly-shaped, and yellow, produced in July or August, and are followed by large bladder-like pods, of a reddish tinge when ripe, which explode with a slight pressure. It is a native of the south of Europe, and is said to grow on the crater of Vesuvius, where there is little other vegetation. It is increased by suckers or from seed.

Combre'ta'ceæ. A natural order of trees or shrubs, with alternate or opposite entire leaves without stipules. They are natives of the tropical parts of Asia, Africa, and America. Some of the plants are cultivated for ornament, and others furnish timber. They have astringent qualities, *Terminalia Bellerica* and *T. Chebula* yielding the astringent fruit called Myrobalan. The bark of *Bucida Buceras* is used for tanning. There are twenty-three known genera and upward of 200 species. *Combretum, Terminalia,* and *Gyrocarpus* illustrate the order.

Combre'tum. An ancient name adopted from Pliny. Nat. Ord. *Combretaceæ.*

This genus contains several species, all remarkable for the elegance and brilliant colors

of the flowers, which are produced in large panicles. They are desirable for covering the roof or columns of an extensive hot-house, and they grow well in a mixture of leaf mould and loam, requiring to be pruned back closely every winter, as it is on the young wood only that flowers are produced. Most of the species are from South America and Africa. Propagated by cuttings of well-ripened wood. The plant known as *C. purpureum* is now placed under Poivrea, which see.

Comespe'rma. From *kome,* hair, and *sperma,* a seed; in reference to the seeds being enveloped with hairs. Nat. Ord. *Polygalaceæ.*

A small genus of green-house evergreen herbs or shrubs, natives of Australia. Their handsome flowers of yellow, white, or purple, borne on terminal or axillary racemes, make them desirable plants. They are easily grown in an ordinary green-house. Propagated by cuttings.

Comfrey. See *Symphytum.*

Commeli'na. Day Flower. Named after *J.* and *G. Commelin,* famous Dutch botanists. Nat. Ord. *Commelinaceæ.*

An extensive genus of annuals and perennials, hardy and green-house trailers, found throughout the Southern States and in South America. It is only the hardier species that can now be considered worth cultivation. *C. cœlestis* forms an excellent border plant. Its flowers are blue, of a brighter shade than perhaps is to be found elsewhere in the whole range of vegetable forms. The tubers of this plant should be taken up in winter, and, indeed, receive the treatment of Dahlias, except that they do not require to be placed in any elevated temperature to induce them to start into growth. The annual species should be sown in March where they are to remain.

Commelina'ceæ. An extensive, widely dispersed order of herbaceous plants, with usually flat leaves sheathing at the base. Flowers with the outer perianth of three segments, the inner also of three and colored. They are natives of New Holland, the East and West Indies, and a few are found in North America, but none in northern Asia or Europe. The underground stems of many yield starch, and are used for food. The filaments of the *Tradescantias* have jointed hairs, in which a granular movement is seen under the microscope. There are sixteen known genera, and 260 species. *Commelina, Tradescantia,* and *Cyanotis* are examples of the order.

Common Petiole. The first and principal leaf-stalk in compound leaves; the secondary petioles are called partial.

Compare'ttia. Named after *Comparetti,* an Italian botanist. Nat. Ord. *Orchidaceæ.*

A genus of epiphytal Orchids, with small rose, purple, or scarlet flowers, produced in small bunches on long stalks. They are natives of Mexico and South America, and succeed best when grown on cork, with a little moss, in a shaded house. The flowers retain their beauty a long time. Introduced in 1838.

Compass Plant. See *Silphium.*

Compo'sitæ, including **Astera'ceæ.** This is the largest natural order of plants, the species occurring in all parts of the world, and in all

places, and forming a total of about equal to a tenth of the whole vegetable kingdom. They are recognized by their monopetalous flowers, growing in close heads (*capitula*), and having at once an inferior one-celled ovary, and stamens whose anthers cohere in a tube (that is, are syngenesious). De Candolle states, as the result of his examination of their natural habit, that out of 8,523 1,229 were annuals, 243 biennials, 2,491 perennials, 2,264 undershrubs from one to three feet high, 366 shrubs from four to fifteen feet high. 72 small trees, 4 large trees above twenty-five feet high, 81 woody plants, 126 twiners or climbers, and 1,201 about which nothing certain could be ascertained. According to Mr. Bentham, the species are nearly equally divided between the New and the Old World, there being known about 430 genera with 4,700 species in the former, and 410 genera containing 4,400 species in the latter. There are about 75 genera common to the two divisions; but the identical species in the two, and those chiefly arctic or high northern, are not more than 70 out of at least 9,100.

The uses of the order, real or imaginary, are very numerous and conflicting. Some are tonic and aromatic, like Wormwood (*Artemisia absinthium*), and others, or vermifuges, like those other *Artemisias*, known in foreign pharmacy as Semencontra, or Semencine. A few are powerful irritants, as the Pellitory of Spain (*Anacyclus Pyrethrum*), and various kinds of *Spilanthes*, which excite salivation. *Arnica montana* is powerfully narcotic and acrid. Similar evil qualities belong to *Crepis lacera*, a most venomous species, said to be no infrequent cause of fatal consequences to those who, in the south of Europe, incautiously use it as a salad; nor are *Hieracium virosum* and *H. sabandum* altogether free from suspicion. Some species of *Pyrethrum* have the power of driving away fleas, and are largely used as insecticides, the Dalmatian and Persian Insect Powders being from this genus. Many yield in abundance a bland oil when their seeds are crushed; such are the Sunflower (*Helianthus annuus*), the Til or Rhamtil (*Verbesinia sativa*), largely cultivated in India, and *Madia sativa*. A purgative resin is obtained from some allies of the Thistles; others, as *Aucklandia Costus*, now referred to *Aplotaxis Lappa*, have aromatic roots. Finally, under the name of Artichoke, Succory, Scorzonera, Endive, Salsify, and Lettuce, we have some of our most nutritious and useful esculents. Botanists adopt various modes of classifying this immense mass of species; but all are subordinate to the four following groups, viz.: *Cichoraceæ*, florets all ligulate (strap shaped); *Corymbiferæ*, florets tubular in the disk; *Cynaraceæ*, florets all tubular, with an articulation beneath the stigma; and *Labiatiflorœ*, florets bilabate (two-lipped).

Composts. This term is applied to any mixture of soils and manures, either for potting purposes, or for top dressing plants in pots, or in the open ground. It may consist of different ingredients according to the habit, or suitable to the requirement of the plants for which it is intended. Manures that by their strength would prove destructive, if applied directly to any plant, may prove beneficial when mixed to form a certain proportion of the compost. In all gardens the accumulating refuse of all kinds may be advantageously composted with soil and a liberal admixture of lime, which, when turned over several times during winter, and thoroughly amalgamated, will prove a valuable top-dressing in spring for lawns or other purposes.

Compound, Composite. Formed of several parts united in one common whole; as pinnated leaves, and all kinds of inflorescence beyond that of the solitary flower. A compound umbel is formed of several simple umbels, etc.

Compto'nia. Sweet Fern. Named after *Bishop Compton*, an ardent cultivator of exotics and a great patron of botany. Nat. Ord. *Myricaceæ*.

C. asplenifolia is a hardy deciduous shrub, common throughout the Northern States on poor soils. It is popularly known as Sweet Fern from its aromatic scent and the resemblance of the leaves to the fronds of the *Asplenium*s. A decoction or tea made of the leaves is useful, applied externally, in cases of poisoning by the Poison Ivy.

Conandron. From *konos*, a cone, and *aner*, *andron*, a male, an anther; the appendages to the anthers are united in a cone around the style. Nat. Ord. *Gesneraceæ*.

C. ramondioides, the only described species, is a very pretty half-hardy herbaceous perennial, introduced from Japan in 1879. The flowers are white or pink, with a purple eye, and are borne on leafless scapes in a forked or corymbose cyme, which is at first drooping. It is closely allied to *Ramondia*, and may be increased by seeds or division.

Cona'nthera. From *konos*, a cone, and *anthera*, an anther, or pollen bag; in reference to the six anthers forming a cone in the early stage of the flower. Nat. Ord. *Liliaceæ*.

This is a small genus of Chilian bulbs, but little known because of the difficulty of preserving them. They produce beautiful blue flowers in panicles on a stalk about one foot high, and require, like all Chilian bulbs, a light, dry soil. They will endure our climate with but little protection, if kept nearly dry during winter. They are rapidly increased by offsets. Introduced in 1823.

Concave. Hollow.

Concentric. Points or lines at equal distances from a common center.

Condor-Vine. A common name for *Gonobolus Cundurango*.

Cone. A dense aggregation of scale-like carpels, arranged symmetrically round an axis, as in the Pine tribe.

Cone Flower. See *Rudbeckia*.

Conferva'ceæ. A division of the green-spored *Algæ*. Found in all parts of the world, but most numerous in temperate regions. They are sometimes so abundant that, after floods, they form a thick coat like paper on the ground, to which the name meteoric paper has been given.

Confluent. The fastening together of homogeneous parts; gradually uniting organically.

Congo Pea. See *Cajanus*.

Coni'feræ. A large and important natural order consisting of trees or shrubs, mostly with resinous secretions. The leaves are

stiff, sometimes linear or needle-shaped, sometimes short and scale-like, or more rarely broad, lobed, or divided. The flowers are unisexual, either in cylindrical or short catkins with closely packed scales, or the females are solitary. There are nearly 200 known species, distributed over a great part of the globe, several of them forming large forests in temperate climates, or, more rarely, within the tropics; while some of them extend almost to the limits of woody vegetation in high latitudes, or at great elevations. Bentham and Hooker, divide this large family into six tribes, viz.: Abetineæ, containing *Abies, Cedrus, Larix, Picea, Pinus, Pseudotsuga* and *Tsuga;* Araucariæ, containing *Agathis, Araucaria* and *Cunninghamia;* Cupressineæ, containing *Arctinostrobus, Callitris, Cupressus, Fitzroya, Juniperus, Libocedrus* and *Thuja;* Podocarpeæ, containing *Microcachrys, Podocarpus* and *Saxegothea;* Taxcæ, containing *Dacrydium, Ginkgo, Pherosphæra, Phyllocladus, Taxus* and *Torreya;* Taxodieæ, containing *Athrotaxus, Cephalotaxus, Cryptomeria, Sequoia* and *Taxodium.*

The Coniferæ are very useful and important, yielding valuable timber and resin, oil, pitch and turpentine. Some attain a vast height, as *Sequoia gigantea* in California, specimens having been measured more than 450 feet high and 116 feet in circumference at the base. *Taxodium sempervirens* also attains a very great size. The Pines have their leaves in clusters of two, three, four, five or six, surrounded by a membraneous sheath at the base. *Pinus sylvestris*, the common Scotch Fir, abounds in cold climates, and supplies timber, turpentine and pitch, as well as a hemp-like fiber from its leaves, which is used for stuffing pillows and cushions under the name of pine wool. *Pinus pinaster*, or the Bordeaux Pine, thrives well on the seashore. *Abies* includes different species of Fir and Spruce, in all of which the leaves come off from the stem and branches singly. *Abies excelsa* is the Norway Spruce, and *A. balsamea* is the Balm of Gilead Fir; *Picea pectinata* the Silver Fir; *Pseudotsuga Canadensis* is the Hemlock Spruce; *Cedrus* comprises those Cedars which have clustered persistent leaves. *Cedrus Libani* is the Cedar of Lebanon, the Eres of the Bible; *Cedrus Deodara* is the sacred Cedar of India. *Larix* includes the species of Larch, which have clustered deciduous leaves. *Larix Europea* is the European Larch; *L. Americana* is the American Larch, commonly called Hackmatack; *L. Griffithii* is the Himalayan Larch. The *Araucarias* have single-seeded scales, with adherent seeds and many-celled anthers. *Araucaria imbricata* is a Chilian species; *A. Bidwillii* is from Moreton Bay; both have edible seeds; *A. excelsa*, which yields valuable wood, is the Norfolk Island Pine. *Cryptomeria Japonica* is the Japan Cedar, of which there are several beautiful forms. *Cupressus sempervirens* is the common Cypress. The Junipers have a peculiar succulent fruit. *Juniperus Bermudiana* and *J. Virginiana* furnish the Cedar for lead pencils. The species of *Thuja* are known by the name of Arbor Vitæ.

Co'nium. Poison Hemlock. From *konao* to whirl around; in reference to the giddiness caused by eating the leaves. Nat. Ord. *Umbelliferæ.*

This genus is almost identical with *Cicuta*, or Water Hemlock. *C. maculatum* is a strong-growing, branching herb, the juices of which are very poisonous. Common in marshy places. Naturalized from Europe.

Connate. When the bases of two opposite leaves are united together. Also when any parts, originally distinct, become united in after-growth.

Connivent. Converging; having a gradually inward direction.

Conocli'nium. Mist-Flower. From *konos*, a cone, and *kline*, a bed; from the conical receptacle. Nat. Ord. *Compositæ.*

C. cælestinum, the only species of much interest, is a hardy herbaceous perennial, with terminal corymbs of violet purple or blue flowers, common in the Southern and Western States. It is commonly called *Eupatorium*, from which it differs only in the receptacle, and is rapidly increased by division or from seed.

Cono'pholis. Squaw Root, Cancer Root. From *konos*, a cone, and *pholis*, a scale; resembling a fir cone. Nat. Ord. *Orobanchaceæ.*

C. Americana is a very singular little plant, common in oak woods, growing in clusters among fallen leaves. The plant is a fleshy herb, chestnut-colored or yellowish throughout, and as thick as a man's thumb. The stem is without leaves, scaly and generally simple. The flowers are in terminal spikes, and not showy. In this country it is popularly known as Cancer Root, from its supposed medicinal properties.

Conoste'phium. From *konos*, a cone, and *stephanos*, a crown; referring to the disposition of the flowers. Nat. Ord. *Epacridaceæ.*

A genus of fruit bearing *Epacridaceæ*, valued for its beautiful flowers by gardeners who delight in growing plants that can only be grown with the greatest difficulty; to which class this plant belongs. The fruit, though wholesome, is not generally liked. The Native Currant of New Holland belongs to this section. Propagated by cuttings. Introduced from Swan River in 1836.

Cono'stylis. From *konos*, a cone, and *stylos*, a style; the style, or female organ, grows in the shape of a cone at the bottom. Nat. Ord. *Hæmodoraceæ.*

A small genus of green-house herbaceous perennials from New Holland, rather ornamental, but not of sufficient merit for general cultivation. Propagated by division of the roots.

Conservatory. The term usually applied to a green-house structure when attached to the dwelling-house, or when it is used as a house wherein specimen plants are grown or displayed; it is usually of an ornamental character and of various sizes. When detached, a convenient size is twenty feet wide by fifty feet in length, with side sashes and curvilinear roofs sloping equally to east and west at an angle of about 35 degrees. The height from the floor to the ridge may be from twelve to fifteen feet, according to circumstances, The height of the front, including three feet of glass, from five to six feet.

Constricted. Lightened, or contracted in some particular place.

COLOCASIA (CALADIUM) ESCULENTA.

COLCHICUM AUTUMNALE.

COLLINSIA.

CEROPEGIA ELEGANS.

COLOCASIA FRAGRANS.

COLCHICUM PARKINSONI,

CONVALLARIA (LILY OF THE VALLEY).

COSMOS HYBRIDUS.

COLLOMIA COCCINEA.

CORYPHA.

CONVOLVULUS MAURITANICUS.

COSMIDIUM.

CORDYLINE (DRACÆNA) INDIVISA.

Contiguous. Where two neighboring parts are in contact through the whole length of their edges or surfaces; as the sepals of *Raphanus* and the cotyledons of many species of plants.

Contorted. Twisted back upon itself; arranged so as to overlap other parts.

Convalla'ria. Lily of the Valley. From the Latin *convallis*, a valley, and *rica*, a mantle; in reference to the dense covering formed by the leaves. Nat. Ord. *Liliaceæ*.

The Lily of the Valley, *C. majalis*, is a plant so well known, and such a universal favorite, that little need be said by way of description, unless we add that of Gerarde in 1596, which is as follows: "The Lilly of the Vally hath many leaves like the smallest leaves of Water Plantaine, among which riseth vp a naked stalke, halfe a foot high, garnished with many white floures, like bels, with blunt and turned edges, of a strong savour, yet pleasant enoughf, which being past, there come small, red berries, much like the berries of asparagus, wherein the seed is contained." A modern writer in the Treasury of Botany says: "Without poetical or fanciful conventionalities, the Lily of the Valley is as perfect an emblem of purity, modesty and humility as the floral world can afford. It may seem idle to observe that a flower of this description cannot be that referred to in the sermon on the mount; but as that opinion is frequently broached in popular works, it may simply be observed that it never grows in the open field, and that there is nothing in its array to which the term 'glory' is applicable. Not a little unprofitable commentary might have been spared if the same general meaning had been attached to the term 'Lilies of the Field,' which has, by common consent, been ascribed to the parallel phrase, 'Fowls of the Air,' while the passage itself would have gained in force and dignity by being kept clear from botanical disquisitions." The flowers of the Lily of the Valley are used during the winter months in immense quantities, New York city alone probably using a million, the average price of which is about five cents each, so that for this flower alone $50,000 is annually paid by the bouquet makers to the florist, the consumer paying, no doubt, one-third more. The Lily of the Valley is nearly all imported from Germany and France, usually in single crowns or "pips." The method of culture is to place these thickly together in shallow boxes as soon as received in November, placing them in a cold frame or in the open ground, covering them up so that they do not get severely frozen. They should remain in this condition at least four weeks before they are brought in to force, which should be done gradually, beginning at 50° and running up to 65° or 70°. If taken every few weeks, a succession may be kept up from January until May. In fact, the flowers are now to be had all the year round, as some growers find it sufficiently profitable to keep the roots in refrigerators, and, thus retarded, they are forced to bloom at will at any time during the summer or fall months. This same system might be used with many other plants, but it is only in very valuable flowers such as this that the expense would be justified. The plant does well in the garden, and may be put under the shade of trees; but wherever placed, the roots should not be disturbed for several years, if at all, as many clumps will not otherwise bloom. Propagated by division.

Convex. Rising in a circular form.

Convolute. When one part is wholly rolled up in another, as in the petals of the Wallflower, or the spathe of an *Arum*.

Convolvula'ceæ. A natural order of herbs or shrubs, usually twining, and with a milky juice, having alternate leaves, without stipules, and regular flowers, the flower stalks (peduncles) bearing one or many flowers. They are abundant in tropical countries and rare in cold climates. They twine around other plants and creep among weeds, etc., along the seashore. The plants are characterized chiefly by their purgative qualities, and many of them are used medicinally. Jalap is produced from the root or underground stem of *Exogonium* (*Ipomœa*) *purga*, while the gum resin called Scammony is produced by *Convolvulus scammonia*. *Ipomœa Bona-nox*, which produces its pure white flowers at night, is the Moon-creeper of Ceylon and other warm countries. *Ipomœa* (*Calonyction*) *grandiflora* is the plant so widely known and distributed as the Moon-flower. *Batatas edulis*, the Sweet Potato, or Batatas, is cultivated in the United States, Japan and China, and also in Spain and Portugal. In the Philippine Islands the Batatas or Camotes are used for making soup, as well as roasted. This order comprises forty-six known genera and nearly 700 species. *Convolvulus*, *Ipomœa*, *Calystegia*, *Exogonium*, *Batatas* and *Pharbitis* are illustrative genera.

Convo'lvulus. From *convolvere*, to entwine; in reference to their twining habit. Nat. Ord. *Convolvulaceæ*.

Well-known, splendid climbing plants, hardy and half-hardy, annual and perennial. They should be trained against stakes or trellis-work, as their stems are too feeble to support themselves. Most of the tender kinds of Convolvulus were separated from it by Linnæus, and formed into the genus *Ipomœa*. All the tender kinds may be made to flower in the open air during summer, and the more hardy species only require sowing in the open ground. *C. Mauritanicus* is a prostrate, twining perennial species having blue flowers, with a white throat and yellow anthers. It is a most useful plant for hanging-baskets, etc. *C. minor* (tricolor), a dwarf-growing species, is a native of Spain and Portugal. The flowers are often pure white, but generally variegated with blue and yellow, or blue and white; the more beautiful kind is a bright blue, gradually changing to a pure white in the center. The form of this flower is no less beautiful than the color. The plant spreads with much regularity in every direction from the center, so that a bed of them, with the plants two feet apart each way, will form a compact mass resembling a single plant. It is scarcely exceeded in elegance by any plant in the border when in full flower. The flowers continue open all day if pleasant, but close in case of rain. Seed should be sown as soon as the ground can be got in order in spring. If started in the green-house in pots it makes a charming plant for hanging-baskets, rustic work, or the window. This species has been noticed for more than 250 years in Herbals.

CON

Cony'za. A genus of *Compositæ*, consisting of herbaceous or shrubby plants of little general interest. They were formerly supposed to have the power, when suspended in a room, of driving away fleas, hence the English name Flea-bane, a name given also to an allied genus.

Coope'ria. Named after *Mr. Cooper*, gardener for many years at Wentworth House, in Yorkshire, England. Nat. Ord. *Amaryllidaceæ*.

A small genus of bulbous plants from Texas, allied to the *Zephyranthes*. *C. Drummondi*, typical of the species, has narrow, twisted leaves twelve to eighteen inches long, and a scape six to twelve inches high, bearing at the end a single flower, of which the tube is upward of four inches long, of a greenish color, and the limb upward of an inch long and pure white. The flower always expands in the evening, and is not usually perfect after the first night. The nocturnal flowering of this plant is an anomaly in the order, and the more remarkable because its nearest relatives require full sunshine to make them expand. The flower has the fragrance of the Primrose. These bulbs are half-hardy, and will endure our winters with a slight protection if grown in a light, sandy soil, which is the one best suited to them. For effect they should be planted in clumps, and quite close together. Propagated by offsets. Introduced in 1835.

Cooper's Wood. See *Pomaderris*.

Copaiba Balsam. The name of the balsam produced by *Copaifera officinalis*.

Copa'ifera. From the Brazilian name *copaiba*, and *fero*, to bear. Nat. Ord. *Leguminosæ*.

A tender evergreen tree, native of Brazil, valuable only for the medicinal properties of the balsam it yields.

Copro'sma. From *copros*, dung, and *osme*, a smell. The plants have a fetid smell. Nat. Ord. *Rubiaceæ*.

A small genus of green-house evergreen shrubs of easy culture, and of little interest except in their own country, where the leaves are used by the New Zealand priests to discover the will of the gods. The leaves are attached with a cord of flax to sticks, which are laid on the ground, each stick representing a separate party. The priests retire to pray, and after a time the chiefs are summoned to examine the sticks, which are found to have been moved, and some have disappeared entirely. This is considered a certain sign that one of the party will be destroyed. Others are found turned over. If the leaf be turned down the omen is bad; but if the reverse should occur, it is a sign that the party represented by the stick will prosper in his undertakings. *C. Baueriana variegata* is a strikingly beautiful plant for the green-house and conservatory, or for a place on the lawn in summer. Propagated by cuttings.

Co'ptis. Gold-thread. From *kopto*, to cut; in reference to the division of the leaves. Nat. Ord. *Ranunculaceæ*.

C. trifolia, the only species, is a beautiful little evergreen herb, with creeping root-stocks, common in boggy places from Maryland northward. The long, bright yellow fibres of the root have caused it to receive the common name of Gold-thread. The roots are very bitter, and are used in medicine as a tonic. It formerly held a prominent place among domestic remedies, and was considered invaluable for sore mouths in children.

COR

Coral Bead Plant. *Abrus precatorius*.

Coral Bush. See *Templetonia*.

Coral Cactus. A popular name for *Rhipsalis*.

Coral Honeysuckle. A local name of *Lonicera sempervirens*, which is also called *Trumpet Honeysuckle*.

Corallorhi'za. Coral Root. Said to be from *korallion*, a coral, and *rhiza*, a root. Nat. Ord. *Orchidaceæ*.

A genus of curious little Orchids, common in wet or boggy places throughout the United States. Their leaves are like small scales, of a yellowish color, like their stems; the flowers are small, in a loose terminal spike. *C. innata*, one of the more common species, is a slender plant, from six to nine inches high, of a pale color, and remarkable for its root-stalk, which is formed of a number of short, thick, whitish fleshy fibres, divided into short, blunt branches, and densely interwoven, resembling coral; hence the popular name. All the species are incapable of cultivation, or, at least, they so rarely live when removed that it is considered a useless task to attempt it.

Coral Root. See *Corallorhiza*.

Coral Tree. See *Erythrina*.

Corbula'ria. From *corbula*, a little basket; in reference to the shape of the nectary. Nat. Ord. *Amaryllidaceæ*.

A small genus, commonly called Hoop Petticoats, which has recently been separated from *Narcissus*. The species are quite ornamental and perfectly hardy, but, like most of what are usually termed "Dutch Bulbs," they do best with a slight protection of leaves or coarse manure. It is a native of Portugal, and is propagated by offsets. Introduced in 1629.

Co'rchorus. From *kore*, a pupil, and *koreo*, to purge; in allusion to the laxative qualities of some of the species. Nat. Ord. *Tiliaceæ*.

An extensive genus of annuals and herbaceous plants, inhabitants of both hemispheres. As ornamental or flowering plants they are of little value. *C. capsularis* is much grown in many sections of India for the exceedingly valuable fibre it yields, which is known under the name of Jute, and which forms an important article of commerce.

Cordate. Heart-shaped in outline; applied to a plane or flat body having two round lobes at the base.

Cord Grass. See *Spartina*.

Co'rdia. A genus of *Borraginaceæ*, containing nearly two hundred species, scattered over the tropical and sub-tropical regions of the world. They are principally trees or shrubs, some of them of considerable beauty. Some species supply useful and ornamental timber; the wood of *C. Rumphi* is brown, beautifully veined with black, and smells of musk. The wood of *C. myxu* is soft, and is reckoned one of the best kinds for kindling fire by friction, and it is said to be the wood which was used by the Egyptians in constructing their mummy cases.

Cordyli'ne. Club Palm. From *kordyle*, a club. Nat. Ord. *Liliaceæ*.

A genus of green-house evergreen shrubs, allied to *Dracæna*. The type, *C. indivisa*, has usually been sold in this country under the

name of *Dracæna indivisa*. It is an exceedingly useful plant for large specimens upon the lawn, or for jardinières, baskets, or vases, as it will withstand some neglect and thrive where many other plants would perish. This species was introduced from New Zealand in 1850, and is propagated from seed, which should be sown in boxes on bottom heat, or in the green-house. As soon as the plants are three inches high, prick out in small pots. The young plants require a high temperature and liberal waterings. Seedlings of this species vary very much in character, and many desirable varieties, such as *C. indivisa Veitchii, atropurpurea, lineata*, etc., are in cultivation. *C. Australis* is also a most useful species, the leaves being broader and more drooping and graceful than the foregoing. A number of the species and varieties cultivated as *Dracænas*, are placed under this genus by many botanists, they being nearly all varieties of *C. terminalis* (*Dracæna*), a species cultivated everywhere throughout the tropics, and producing innumerable varieties from seed.

Coreo'psis. From *koris*, a bug, and *opsis*, like; referring to the appearance of the seeds. Nat. Ord. *Compositæ*.

Most of the showy annuals formerly known by this name are now called Calliopsis, while most of the perennial species are still left in this genus. The perennial kinds are quite hardy, the taller sorts requiring plenty of room, but such free-flowering, showy gems as *C. auriculata, C. lanceolata*, and *C. tenuifolia* should have prominent positions. They are valuable also for cutting, as the closer the blooms are cut, the more they flower. They are propagated by division of the roots, or from seed, which, if sown where it is to remain, as soon as ripe, will flower early the following summer. The many species are found from South Carolina southward to Mexico.

Coriaceous. Having the consistence of leather.

Coria'ndrum. Coriander. From *koris*, a bug; referring to the smell of the leaves. Nat. Ord. *Umbelliferæ*.

C. sativum, the only species, is a hardy annual, and a native of the south of Europe. It is a plant of little beauty, and of the easiest culture. It is grown only for its seeds, which are quite aromatic, and much used in flavoring. The odor and taste depend upon a volatile oil.

Co'ris Monspeliensis. The only species of the genus, a native of the western coasts of the Mediterranean is a lowly-branching herbaceous plant, bearing beautiful bright lilac flowers in dense terminal spicate racemes. It belongs to the Primrose family, and is an excellent plant for the rock-garden. Increased by seed, sown as soon as ripe.

Cork Tree. Common. *Quercus suber.*
E. Indian. *Adansonia digitata.*

Cork Wood. *Hibiscus tiliaceus.*
West Indian. *Ochroma Lagopus*, and *Anona palustris*, which see.

Corm. A fleshy, solid underground stem, having the appearance of and often called a bulb, and from which it is distinguished by its not being scaly. The Gladiolus, Crocus, Babiana, Sparaxis, etc., are Corms.

Corn. See *Zea.*

Corna'ceæ. A small natural order of trees and shrubs, rarely herbs, natives of the temperate parts of Europe, Asia, and America. The plants are used as tonics and in agues. From the wood of *C. mascula*, the Turks obtain the dye for their red fez. Some species are grown as ornamental plants, and the common Dogwood, which is very heavy and solid, is much too commonly used in the United States for baling hay, those who buy the hay very properly esteeming it a fraudulent practice. There are nine known genera and forty species. *Cornus, Aucuba*, and *Benthamia* are illustrative genera.

Corn Flag. *Gladiolus segetum.*

Corn-flower. Blue. *Centaurea Cyanus.*

Corn-Lily. *Convolvulus arvensis* and *C. Sepium.*

Corn-Marigold. *Chrysanthemum segetum.*

Corn Pink and **Corn Cockle.** *Lychnis Githago.*

Corn Poppy. *Papaver Rhœas.*

Corn Salad. See *Valerianella,*

Corn Thistle. *Carduus arvensis.*

Cornel. *Cornus sanguinea.*
Dwarf. *Cornus suecica* and *C. Canadensis.*

Corniculate. Terminating in a process resembling a horn, as the fruit of *Trapa bicornis.* If there are two horns the word *bicornis* is used; if three horns, *tricornis*, and so on.

Co'rnus. Dogwood. From *cornu*, a horn; in reference to the hardness of the wood. Nat. Ord. *Cornaceæ.*

A genus consisting principally of trees and shrubs. Some of the latter are very ornamental, the bark of the branches being of a brilliant, glossy red in winter, and the leaves of an intense purplish red in autumn. *C. florida*, or Flowering Dogwood, is a tree growing from twelve to thirty feet high, and is common in rocky woods from New York southward. It is an interesting species, not only for its symmetrical growth, but for its large showy flowers, or rather the involucres which surround the flowers (which are pure white inside and tinged with violet on the outside), and the showy fruit which succeeds them. It is an appropriate and popular tree for cemeteries and a fine ornament for the lawn. *C. Canadensis*, Bunch Berry, or Dwarf Cornel, is a small herbaceous species, growing about six inches high, from a creeping subterranean root-stock, the upper leaves crowded into an apparent whorl in sixes and fours, surrounding the clear white floral involucres—one of the neatest and most interesting plants for the rock-garden. It is common in damp, cold woods northward.

Corolla. That part of a flower which intervenes between the calyx and the stamens. Its parts, which are called petals, are almost always colored.

Corolliflo'ræ. A sub-class of Dicotyledons or Exogens, characterized by the petals being united, so as to form a monopetalous corolla, inserted below the ovary, and by the stamens being usually attached to the corolla, but sometimes inserted separately below the ovary. Such orders as the Heath family, the Gentians and the Labiates may serve as illustrations.

Corona. A coronet; literally a crown. Any appendage that intervenes between the corolla and stamens, as the cup of a Daffodil or the rays of a Passion Flower, or the crown-like cup which is found at the orifice of the tube of the corolla of the Narcissus, etc. *Corona staminea*, is a coronet formed from transformed stamens.

Coroni'lla. From *corona*, a crown or garland; in reference to the arrangement of the flowers. Nat. Ord. *Leguminosæ*.

A genus of pretty annual and perennial plants found in Europe, Asia Minor and north Africa, but in the greatest abundance in countries bordering on the Mediterranean Sea. Several of the green-house species are very pretty flowering shrubs of easy culture. *C. glauca* produces its bright yellow, pea-shaped flowers in abundance during the winter, and with its beautiful variegated variety is invaluable for winter green-house decoration. Propagated by cuttings or from seeds, which ripen freely.

Corpse Plant. One of the popular names of the *Monotropa uniflora*, a low-growing parasite on roots, or growing on decomposing vegetable matter, like a fungus. It is also called *Indian Pipe*.

Co'rrea. Named after *Joseph Correa*, a Portuguese botanist. Nat. Ord. *Rutaceæ*.

A genus of green-house evergreen shrubs, natives of New South Wales, New Holland and Australia, where they are sometimes called Fuchsias, from the slight resemblance the flowers have to the Fuchsia. Several of the species have long been grown in green-houses for the beauty of their flowers, which are white, scarlet or green; produced in June. The leaves of *C. alba* are said to be a very good substitute for tea. They are increased by cuttings. Introduced in 1793.

Corrugated. When the parts are crumpled up irregularly, as the petals of the Poppy or the skin of some seeds.

Cortex. The bark or cortical layer.

Corticate. Like bark; harder externally than internally; having a rind, as the orange.

Corya'nthes. Helmet Flower. From *korys*, a helmet, and *anthos*, a flower; in reference to the shape of the lip or labellum. Nat. Ord. *Orchidaceæ*.

A genus of epiphytal Orchids found in Mexico and South America. Among the many curious forms peculiar to this genus, perhaps the most singular is that of *C. macrantha*, which is thus described in the *Botanical Register*: "The plant has the habit of a *Stanhopea*, and pushes forth from the base of its pseudo-bulbs a pendulous scape, on which two or three flowers are developed. Each flower is placed at the end of a long, stiff, cylindrical-furrowed ovary, and when expanded measures something more than six inches from the tip of one sepal to that of the opposite one. The sepals and petals are nearly of the same color, being of an ochrey yellow, spotted irregularly with dull purple. The lip is as fleshy and solid in its texture as the sepals and petals are delicate. It is seated on a deep purple stalk, nearly an inch long; this stalk terminates in a hemispherical, greenish-purple cup or cap; and the latter, contracting at its front edge, extends forward into a sort of second stalk of a very vivid blood-color, the sides of which are thinner than the center, turned back, and marked with four or five very deep, solid, sharp-edged plaits. These edges again expand and form a second cup, less lobed than the first, thinning away very much to the edges, of a broadly conical figure, with a diameter of at least two inches at the orifice; this second cup is of an ochrey yellow, streaked and spotted with pale crimson, and seems intended to catch a watery secretion, which drips into it from the succulent horns, taking their origin in the base of the column, and hanging over the center of the cup." There are several species of the genus, all of which must be grown in a hot house. Propagated by division. They flower in June and July.

Cory'dalis. From *korydalos*, a lark; the spur of the flower resembling that of the lark. Nat. Ord. *Fumariaceæ*.

A handsome genus of hardy tuberous rooted, herbaceous plants. Their flowers are showy, and of many shades of color. They need an open exposure. The perennial kinds may be increased by division of the tubers about every three years. *C. nobilis*, a native of Siberia, is one of the most beautiful and early flowering of light yellow colored hardy border plants. The annual species require to be sown in March where they are to remain. Several of the species are indigenous, growing in rocky places, and grow from one to three feet high, bearing flowers of various colors. They are easily propagated by seeds, and are very pretty plants for rock-work.

Coryla'ceæ. This order founded by Lindley, of which the principal genera are *Carpinus*, *Corylus*, *Castanea*, *Fagus*, and *Quercus*, is now included under *Cupuliferæ*.

Corylo'psis. From *korylos*, the Hazel tree, and *opsis*, like; nut-like. Nat. Ord. *Hamamelidaceæ*.

Very ornamental and interesting, hardy deciduous shrubs; in habit, leaves and inflorescence resembling Hazels. Flowers appearing before the leaves in pendulous racemes, each flower nearly sessile with a large sheathing yellow bract. Natives of the Himalayas and Japan.

Co'rylus. Hazel-nut, Filbert. From *korys*, a hood or helmet; in reference to the calyx covering the nut. Nat. Ord. *Corylaceæ*.

This well-known deciduous shrub, is common throughout this country and Europe. The species that yields the Filbert of commerce, *C. Avellana*, is found growing in great abundance near Avellana, a city of Naples, whence the specific name. It is a strong growing shrub from ten to fifteen feet high. The Filbert is monœcious; the male catkins make their appearance in September, on the previous year's growth, but are not fully developed or expanded until the succeeding season, when the female flowers appear about the first of February, and in April they are in full flower. The flowers are small and of a beautiful red color. The fruit of this species forms an important article of export from Naples. *C. Colurna*, a native of Turkey and Asia, is a tall-growing tree, often reaching a height of sixty feet. The nuts are larger than those of the preceding species, and are of excellent quality. This country is represented by two species, *C.*

Americana being our common Hazel-nut. The fruit is smaller and thicker-shelled than the European species.

Corymb. A raceme whose pedicels grow gradually shorter as they approach the summit, so that the result is a flat-headed inflorescence or flower head, as in Candytuft, etc. A *Compound corymb* is a branched corymb, each of whose divisions is corymbose.

Corymbi'feræ. Corymb-bearing composite plants, a sub-order of the natural order *Compositæ*, containing plants with numerous flowers on a common receptacle, forming a head surrounded by a set of floral leaves or bracts called an involucre. Such plants as Chamomile, Ox-eye Daisy, Dahlia, Sunflower, Cineraria, Ragwort, Groundsel, etc., belong to this sub-order.

Coryno'stylis. From *koryne*, a club, and *stylos*, a column; alluding to the club-shaped style. Nat. Ord. *Violaceæ*.

A small genus of very handsome climbing shrubs, inhabiting tropical America. *C. albiflora*, is a beautiful green-house plant of a trailing or climbing habit, producing white, trumpet-shaped flowers, about two inches in length, suspended on long thread-like peduncles. These interesting flowers, taken in profile, present the appearance of some long spurred Tropæolum, while on the front view they bear a resemblance to those of a gigantic Violet. Increased by cuttings of the young wood, or by seeds. Introduced from Para, in 1870.

Co'rypha. Fan Palm. From *koryphe*, the summit; in reference to the leaves growing in tufts on the top of this Palm. Nat. Ord. *Palmaceæ*.

A noble genus of Palms, growing from fifteen to one hundred and fifty feet high. They are chiefly natives of tropical Asia. The Talipot Palm, *C. umbraculifera*, is a native of Ceylon and the Malabar coast, where it usually grows sixty to seventy feet high. The leaves have prickly stalks six or seven feet long, and when fully expanded they form a nearly complete circle of thirteen feet in diameter. Large fans are made of these leaves, which are carried before people of rank among the Cingalese. They are also commonly used as umbrellas, and tents are made by neatly joining them together, being the only ones in use for the soldiers of that country. It bears no fruit until the last year of its life, when it throws out great branches of beautiful yellow flowers that emit a most disagreeable odor. The fruit is borne in great abundance, is very hard and round, and about the size of a large cherry. From these the plant is propagated, and requires great heat and a humid atmosphere to grow it successfully. This species was introduced in 1742. *C. australis* is synonymous with *Livistona australis*.

Corysa'nthus. From *koryos*, a helmet, and *anthos*, a flower; flowers helmet-shaped. Nat. Ord. *Orchidaceæ*.

A genus of small but pretty terrestrial swamp orchids, inhabiting Australia and Java, but little seen in cultivation.

Cosma'nthus. A genus now merged in *Phacelia*, which see.

Cosme'lia. From *kosmeo*, to adorn; in reference to the beauty of the flowers. Nat. Ord. *Epacridaceæ*.

The only species, *C. rubra*, is a beautiful dwarf green-house plant, with bright red flowers resembling those of an Epacris, but larger and more swollen in the middle of the tube. It requires to have plenty of air, and is improved by frequent stopping while young. Propagated freely from cuttings.

Cosmidi'um. A genus of hardy annuals, recently formed from *Calliopsis*, having the same general character, and under which it is usually described. Syn. *Thelesperma*.

Co'smos. From *kosmos*, beautiful; in reference to the ornamental flowers. Nat. Ord. *Compositæ*.

Mexican plants, generally grown as annuals, but which mostly have tuberous roots like the Dahlia, and may be treated like that plant. The flowers are very showy, and of a reddish purple; the seeds, when the plants are grown as annuals, should be sown in March or April, in a frame or green-house; or in autumn, if the young plants can be protected during winter. The plants will grow four or five feet high in any garden soil. The beautiful annual species *C. bipinnatus*, has very finely cut featherly foliage, and large single Dahlia-like flowers, ranging in color from white, to deep rose. An excellent autumn blooming sort, and valuable for cutting. If grown in pots, and housed by the end of September, it will give a succession of flowers all winter. Introduced in 1799.

Cossi'gnia. Named after *M. Cossigny*, a French naturalist. Nat. Ord. *Sapindaceæ*.

There are but two known species in this genus, both small evergreen trees, with pinnate leaves, with from one to three pairs of oblong leaflets and an odd one. The upper surface of the leaves is richly veined with golden yellow, the under surface covered with short white down. The flowers are small, white, and are arranged in terminal panicles. They were introduced from the Mauritius in 1824. Propagated by cuttings.

Costa. The midrib of a leaf; that part which is a direct extension of the petiole, and whence the veins arise; a leaf may have several *costæ*.

Costmary, or Alecost. *Tanacetum Balsamita*.

Co'stus. An ancient name adopted from Pliny. Nat. Ord. *Scitaminaceæ*.

A genus of tropical herbaceous perennials, having tuberous roots, somewhat fleshy leaves, and flowers in spikes with over-lapping bracts. *C. speciosus* is a very ornamental warm green-house plant, with white flowers, and leaves silky beneath. Its roots are used by the natives in India to make a kind of preserve. They are of easy culture and are propagated by division of the roots.

Cotonea'ster. From *Cotonea*. Pliny's name for the quince, in reference to the downy leaves of this genus being similar to the quince. Nat. Ord. *Rosaceæ*.

A genus of half-hardy, deciduous and evergreen trees, upright and trailing shrubs, inhabiting the northern parts of Europe and the mountains of India. The leaves are small and entire at the edge, downy beneath; the flowers are white or pinkish, and produced in lateral clusters, like those of hawthorn, or

singly, and are succeeded by scarlet, and occasionally black, berry-like fruit. Loudon says: "The species are very desirable from the beauty of their foliage, flowers, and fruit. *C. frigida* and *C. affinis* in particular, producing fruit in great abundance, of an intense scarlet color, which have a splendid appearance, and remain on the trees the greater part of the winter." *C. microphylla* is a yet more valuable plant. In this species the branches are trailing, the leaves small and evergreen. It is perfectly hardy and wherever it grows, ornamental; its deep glossy foliage, which no cold will impair, is, when the plant is in flower, covered with snow-white blossoms, rendering it a very desirable plant for rockwork, etc. This species is a native of Nepaul, and was introduced 1825.

Cotton. See *Gossypium.*

Cotton-Grass. The common name of the genus *Eriophorum.*

Cotton Rose. *Filago Germanica.*

Cotton Thistle. See *Onopordon.*

Cotton Tree, Silk. See *Bombax.*

Cotton-Wood. See *Populus.*

Cotyle'don. Navelwort. From *kotyle*, a cavity; in allusion to the cup-like leaves. Nat. Ord. *Crassulaceæ.*

A genus of succulent plants, with fleshy leaves, nearly allied to the House-leek, and bearing red or yellow flowers. They are plants of no great beauty, but like all succulent plants, are very interesting. The ornamental species are all from the Cape of Good Hope, and were first introduced in 1690. They are propagated by cuttings and leaves, and require an open, sandy soil. Under this one genus several botanists now include *Echeveria*, *Pachyphytum*, *Pistorinia*, and *Umbilicus.* The differences are at the best merely botanical; the culture of the groups is identical.

Cotyledons. The seed lobes; the primordial leaves in the rudimentary plant or embryo; the fleshy leaves that appear above ground when a seedling plant begins to grow, commonly called seed leaves. Monocotyledons have only one such leaf, as Grasses, Lilies, Palms, etc.; Dicotyledons have two, as the Maple, Elm, Pea, Bean, etc.

Couch-Grass. The popular name of *Triticum repens.*

Coulte'ria. In honor of *Thomas Coulter, M.D.*, a botanical author. Nat. Ord. *Leguminosæ.*

A genus of ornamental hot-house shrubs, that grow from twelve to fifteen feet high, and produce an abundance of yellow and orange flowers. Their size prevents them from being grown except in botanical collections. The wood of some of the species is used in dyeing.

Couta'rea. From *coutari*, its name in Guiana. Nat. Ord. *Rubiaceæ.*

This fine evergreen tree is allied to Cinchona. It requires the same treatment, and its bark has much the same medicinal properties.

Cowa'nia. In commemoration of the services rendered to botany by the late *Mr. James Cowan*, a merchant, who introduced a number of plants from Mexico and Peru. Nat. Ord. *Rosaceæ.*

C. plicata, the only species, is worth far more attention than it has hitherto received. Its flowers are large and handsome, resembling those of a Rose. They are bright red, and, in addition, the plant is a shrub of robust character, nearly hardy, requiring only to be protected from severe frosts. Propagated by division. It is a native of Mexico.

Cowbane. The popular name given the genus *Archemora*, reputed to be an active poison, particularly to cattle, if eaten by them. It is quite common in swampy grounds, from New York to Illinois and southward. It is also called *Wild Parsnip.*

Cowberry. One of the common names of *Vaccinium*, which see.

Cow-Herb. See *Vaccaria.*

Cow-Itch. See *Mucuna.*

Cow-Parsnip. The common name of *Heracleum*, a coarse growing, weedy plant, sometimes used in medicine, but of doubtful reputation.

Cowrie Pine, *Dammara australis.*

Cowslip. See *Primula.*
American. *Dodecatheon Meadia.*

Cow-Tree. See *Brosimum.*

Cow Vetch. *Vicia Cracca.*

Cow Wheat. The genus *Melampyrum.*

Crab-Apple. See *Pyrus.*

Crab-Grass. Called also Dog's Tail, or Wire-Grass, popular names of the genus *Eleusine*, a native of India, but extensively naturalized in this country.

Crab's Claw Cactus. See *Epiphyllum.*

Crab's Eyes. The seeds of *Abrus precatorius.*

Cra'mbe. Sea-Kale. The name *crambe* is derived from the Greek name for Sea-cabbage. Nat. Ord. *Cruciferæ.*

A genus of hardy perennials. *C. maritima*, the best known species, is a native of the west coast of England, where it grows in great abundance in the clean sand and gravel. The common people have from time immemorial, been in the practice of watching the appearance of the shoots and leaf-stalks closely, as they appear in early spring, when they cut them off under ground in the same manner as we do Asparagus. These young shoots, when cooked, are by many considered superior to either Asparagus or Cauliflower. Sea-Kale is only fit for use in a blanched state, which is easily done. In early spring the crowns should be covered with sand, or some light mulching that will exclude the young shoot from light, the covering being from twelve to fifteen inches in depth. By the time the young leaves are through this mulching they will be perfectly blanched and fit for use. It is a common practice with gardeners to cover the crowns with an inverted flower-pot, and by others the whole bed is covered with manure. Either plan will prove satisfactory. See "Forcing Vegetables." Sea-Kale is increased by seed or root cuttings, the latter plan being preferable. The roots should be taken up in the fall, cut in pieces two to three inches long, and these placed in boxes of sand in a dry cellar until the weather is settled in spring, when they may be planted out in rows, three feet apart, and about nine inches

between the plants. With this treatment many of the crowns, under favorable circumstances, will be strong enough to yield a crop the next season.

Cranberry. See *Oxycoccus.*

Cranberry-Tree. See *Viburnum opulus.*

Crane-fly Orchis. See *Tipularia.*

Cranesbill. See *Geranium.*

Crape Myrtle. See *Lagerstræmia.*

Cra'ssula. A diminutive of *crassus*, thick; in reference to the fleshy leaves and stems. Nat. Ord. *Crassulaceæ.*

Succulent green-house plants, natives of the Cape of Good Hope, with heads of red or white flowers. All the Crassulas should have alternate seasons of stimulus and repose. When they are growing, and about to flower, they should be well watered, and when the flowers begin to fade, the supply of water should be gradually lessened, till at last very little is given. The plants are propagated by cuttings, which should be laid on a shelf two or three days to dry before planting, or they may rot. Most of the species are from the Cape of Good Hope, and have been in cultivation more than a century.

Crassula'ceæ. An extensive natural order consisting generally of succulent herbs or shrubs. Natives of dry places in all parts of the world. They are found on rocks, old walls or hot, sandy plains, exposed to the heaviest dews at night, and the scorching rays of the mid-day sun. Some species are astringent. *Sedum acre* is very acrid, and is hence called Wall Pepper. *Sempervivum tectorum*, the House-leek, is so called from being grown in some places on the tops of houses. *Bryophyllum calycinum* possesses the property of producing leaf-buds along the margins of its leaves. There are over fourteen genera, including *Crassula, Sedum, Sempervivum, Penthorum*, etc., and over 400 species.

Cratæ'gus. The Hawthorn. From *kratos*, strength; in reference to the strength and hardness of the wood. Nat. Ord. *Rosaceæ.*

A well known family of moderate-sized trees, commonly called thorns. They are found throughout the United States, Europe and the temperate regions of Asia and Africa. There is a great resemblance to each other in all the species, both as to the shape of the leaves and color of the flowers. The English Hawthorn, *C. oxyacantha*, so commonly used as a hedge plant, will not stand the severity of our winters, at least much north of New York, with a certainty that would warrant its use here. Single specimens are often met, in old gardens, of great age and size. The Hawthorns are remarkable not only for their fragrant flowers and ornamental fruit, but for the variations common in both. The flowers are usually white, but in the cultivated varieties vary to pink and crimson. The fruit is sometimes globular, sometimes oblong, but generally smooth and polished, and in some quite downy; while the color is from black and dark red, to orange-yellow and white. The double-flowering varieties are especially beautiful. Some of our native species are among the most ornamental low trees we have in our gardens, being, when in bloom, completely covered with pure white flowers of delicious fragrance. From the time of their coming into flower they have been quite commonly called the May-tree. From the perfect hardiness of the species, their ornamental appearance both in flower and fruit, which never fails, they should be cultivated in preference to the foreign kinds. Propagated usually by seeds, which not unfrequently take two years to germinate. A double-flowering variety, sent from France, is a tree of great beauty, the flowers being bright rosy pink, not unlike the flowering Almond, but of greater substance. This variety is not considered hardy north of Philadelphia. The great drawback to its culture is its being subject to the attacks of the "borer." It is propagated by cuttings or by budding on the more common varieties. *C. Pyracantha*, the Evergreen Thorn, has fruit of a bright scarlet color, about the size of a pea, remaining on the tree all winter. There is another variety with bright yellow berries. They are both valuable for lawn decoration, and make excellent hedge plants. The whole species grow well in a soil that is naturally dry; wet or marshy situations are wholly unsuited to them.

Crazy Weed. See *Astragalus.*

Crawfu'rdia. In honor of *Sir John Crawfurd*, governor of Singapore. Nat. Ord. *Gentianceæ.*

This genus consists of two species, both herbaceous climbing plants, closely allied to, and formerly included in, the genus *Gentiana. C. Japonica* (Climbing Gentian), a native of Japan, is an exceedingly beautiful plant, attaining a height of six feet, and producing large axillary bell-shaped flowers of a deep blue color. *C. fasciculata* (fascicle flowered), a native of the Himalayas, is a similar species, but not so tall. Propagated by division or from seed. Both species are of recent introduction into the garden.

Creeper. Properly, a plant that trails on the ground.

Creeping Charlie. A popular name of *Lysimachia nummularia.*

Creeping Forget-Me-Not. See *Omphalodes verna.*

Creeping Jack. *Sedum acre.*

Creeping Jenny. *Lysimachia nummularia.*

Creeping Myrtle. See *Vinca.*

Creeping Sailor. *Saxifraga sarmentosa.*

Creeping Stem. In common usage, applied to stems growing horizontally, both above and under ground. An underground stem.

Crenate. Having convex flat teeth, or rounded or scolloped notches.

Crenulate. Having small round notches.

Creosote Plant. See *Larrea.*

Cre'pis. From *krepis*, a slipper. Hawksbeard. Nat. Ord. *Compositæ.*

A genus of herbaceous plants consisting of about one hundred and thirty species, very few of which are of much interest. Two of the few worth growing are *C. aurea* and *C. rubra.* The first is a neat border perennial, and the latter a very pretty annual. They are both of easy cultivation.

Crescentia. Named after *Pietro Crescenzi*, an Italian writer on agriculture. Nat. Ord. *Bignoniaceæ.*

CRE

A genus of large evergreen spreading trees, with large solitary flowers, rising from the trunk or branches. They are all natives of tropical America, and are increased by cuttings of the ripened wood. *C. Cujete*, is the Calabash Tree.

Cress. Garden. See *Lepidium.*

American or Land. *Barbarea præcox.* This much resembles Water Cress in flavor; the leaves may be used for the same purposes as common Cress.

Indian. *Tropæolum majus.*

Water. See *Nasturtium officinale.*

Cre'ssa. From *cressa*, a native of Crete; the plant is plentiful there. Nat. Ord. *Convolvulaceæ.*

A curious little annual, rarely seen in our collections. The flowers are funnel-shaped, of a lively purple, and freely produced. It requires but little care or nursing, if planted in a light, rich soil. There is but one species, *C. Cretica*, which is a native of the Levant. Introduced in 1822.

Crested. Having an elevated, irregular, or notched ridge resembling the crest of a helmet; a stamen is crested when the filament projects beyond the anther and becomes dilated. This term is chiefly applied to seeds, and to the appendages of anthers. It also belongs to bracts which form with their edges an appearance like that of a crest. The term is often applied to the Moss Rose.

Crested Dog-tail Grass. See *Cynosurus.*

Crimson Flag. See *Schizostylis.*

Crimson Trefoil. *Trifolium incarnatum.* An annual species, used largely in Italy and the south of France for feeding green. The yield in fodder is immense, as, in warm climates, four to five cuttings can be made in a season. The blossoms are long, pointed, and of a deep red or carmine color.

Cri'num. From *krinon*, the Greek name of the Lily. Nat. Ord. *Amaryllidaceæ.*

This is a fine genus of bulbous plants, growing from a foot and a half to five feet in height. The flowers are large, produced freely in umbels, and many of them are richly scented and of pleasing colors. To grow them well they should be potted in rich loam full of fibrous matter, and, in the early part of the growing season, they should have the benefit of a moderate bottom heat, with abundance of water every day, and an additional soaking of liquid manure about once a week. In winter, of course, this must be discontinued, and the plants placed where they may receive all the light possible, in order to mature the new growth and induce them to flower freely the following season. *C. amabile* is a noble species, requiring to be grown in a strong heat. The bulbs grow six to eight inches in diameter, and two feet long, and sometimes produce, both spring and fall, immense spikes of dark purple flowers, of delicious fragrance. This species is a native of the East Indies, and was introduced in 1810. The genus is very large, and the species are found in nearly all tropical and sub-tropical countries. Propagated by offsets.

Crispate, Crispus. When the edge is excessively and irregularly divided and puckered; also when the surface is much puckered and crumpled. Well-known examples are afforded by Curled Parsley, Curled Endive, Curled Kale, etc. Crispate is also a diminutive of Bullate, which see.

CRO

Crista'ria. From *crista*, a crest; in reference to the form of the seed vessel. Nat. Ord. *Malvaceæ.*

A pretty hardy herbaceous perennial from the Southwestern States, producing quite showy scarlet flowers in terminal racemes or clusters. Propagated by division of the roots or from seeds, which however require some time to produce flowering plants.

Croceus, Crocatus. Saffron-colored.

Croco'smia. From *crocus*, saffron, and *osme*, smell; alluding to the odor of saffron exhaled by the dried flowers, when immersed in warm water. Nat. Ord. *Iridaceæ.*

C. aurea, the only species, is a beautiful Ixia-like plant, with large, deep orange-colored flowers, somewhat resembling those of the crocus in form. The corms are fleshy, like those of the *Tritonia*, in which genus it was formerly included; it can be grown in the cold frame, and is increased by offsets.

Cro'cus. A Chaldean name, applied by Theophrastus. Nat. Ord. *Iridaceæ.*

Of this well-known genus there are many species, mostly found in the southern and eastern parts of Europe, and in Asia Minor. As a garden flower the species are almost entirely lost sight of in the large number of varieties that have been produced by hybridizing. They are divided into two classes: the first, those that flower in early spring, too well known to need description; the second, the autumnal-flowering or naked Crocus, so called because the flowers are produced in the absence of leaves, which, with the seeds, are produced in the spring. The spring-flowering Crocus is of the easiest culture, and we need only remark that it is a mistake to put them into poor ground, since no plants in our gardens delight more in, or make greater returns for, rich soil. They require a dry situation, and in such a place and soil they flower profusely. The bulbs or corms should be planted at least three inches deep; for, as the new corm forms above the old one, they will, in three or four years, push themselves out of the ground if planted too near the surface. As often as once in three years the corms should be taken up, separated, and planted out as quickly as possible; the longer they are left out of ground the weaker they become, and the later they will come into bloom. In starting a new bed the corms should be planted as soon as they can be obtained, which is usually about the first of September. If left until November, as is the too common practice, very few will flower strongly the coming season, and none satisfactorily. When left in the ground, they commence new life about the first of September, and before winter they have their preparations for spring work complete; the flower buds will be nearly their full length above the bulb, ready for the first sunny days in March to break forth into bloom. One of the peculiarities of the Crocus is, that when they are in flower, the germen, or seed vessel, is still under ground, almost close to the bulb; and it is not till some weeks after the flower has decayed that it emerges on a white peduncle, and ripens its seeds above the ground. The situation for the Crocus bed should be a warm one, and before

CRESS (UPLAND).

CRUCIANELLA.

CUCURBITA (GOURD).

CURCULIGO RECURVATA VARIEGATA.

CROTON AUREA MACULATA.

CROTON VAR. CHALLENGER.

CROCUS.

CUCURBITA DEPRESSA.

CRAMBE MARITIMA (SEA KALE).

CUCUMIS FLEXUOSUS.

CUPHEA MINIATA.

CUCUMBER (EAST INDIA GHERKIN).

CUCUMBERS (VARIETIES OF).

hard frosts it may be mulched two or three inches with leaves or coarse litter, which is to be taken off as soon in spring as the season will warrant. The mulching, however, may be omitted where it is not convenient to apply it. *C. sativus*, which is the type of the autumnal-flowering species, should be planted in midsummer, and it will come into flower in September. All the species and varieties are increased by offsets. Their introduction into British gardens dates back as far as 1600. The named varieties bear very large flowers, and are, in all respects, very great improvements upon the older kinds.

Crops, Rotation of. See *Rotation.*

Crossa'ndra. From *krossos*, a fringe, and *aner, andros*, an anther; in reference to the anthers being fringed. Nat. Ord. *Acanthaceæ.*

Beautiful evergreen free-flowering shrubs, with large flowers in terminal, four-cornered spikes. There are five species, one of which is a native of the East Indies; the others are from tropical Africa and Madagascar. All are of easy culture and may be readily increased by cuttings.

Cross-Wort. A common name for the genus *Crucianella.*

Crotala'ria. From *krotalon*, a castanet; the seeds are inflated pods, and rattle when shaken. Nat. Ord. *Leguminosæ.*

This is an extensive genus, and a few of its species are particularly beautiful. The greenhouse kinds are to be preferred. All of them grow readily in loamy soil, the chief point in their culture being to observe that the young shoots are stopped once or twice in the early part of their growth, in order to counteract their natural tendency to grow upright, and become what is technically expressed as "long-legged." One of the principal discouragements in growing these plants is the difficulty of preserving them from the attacks of the red spider. The annuals are grown from seed, and the perennial kinds are increased from cuttings. The species are pretty generally found from the West to the East Indies. Some of the annuals are found in the Southern States.

Cro'ton. From *kroton*, a tick; in reference to the resemblance of the seeds. Nat. Ord. *Euphorbiaceæ.*

A genus of green-house evergreen shrubs of great beauty, grown for their variegated foliage, they being among the most strongly marked plants in cultivation (yellow and green, sometimes red with the other colors). They are readily propagated by cuttings, with a bottom heat of not less than 75°, and require a high temperature and full sunlight to develop their markings. Leaf mould is an essential element in the compost for potting. Water should be sparingly used, particularly in winter. They do best in small pots, and as ornamental plants for decoration, they have no superior. Notwithstanding their great beauty, they are also classed with the economic or useful plants. *C. Tiglium* furnishes the Croton oil, a most powerful purgative. *C. tinctorum* is used to dye both silk and wool of an elegant blue color. The substance for this purpose is called Turnsol, and is made of the juice which is lodged between the calyx and the seeds. *C. Eleuteria* furnishes the Cascarilla bark, which has a pleasant, spicy odor, and a bitter, warm, aromatic taste, and it is considered a valuable medicine. The species are nearly all natives of the East Indies, and were first introduced in 1748. Syn. *Codiæum*, under which genus the large number of cultivated variegated sorts are now placed. See *Codiæum.*

Crow-berry. *Empetrum nigrum.*

Crow'ea. Named after *J. Crowe*, a British botanist. Nat. Ord. *Rutaceæ.*

A genus of beautiful green-house shrubs, consisting of but two species, *C. latifolia* and *C. saligna*, both lovely objects when in flower, which is nearly two-thirds of the year. They are in the greatest perfection during the winter months. The flowers are lily-shaped, of a beautiful purple, and borne at the axil of the leaves. They are easily propagated from cuttings, and should be grown in a mixture of leaf mould and loam. Water should be sparingly given, or the plants will have a sickly, yellow appearance. Both species are natives of New South Wales, and were introduced in 1790.

Crowfoot. See *Ranunculus.*

Crown Imperial. See *Fritillaria.*

Cruciane'lla. Crosswort. A diminutive of *crux*, a cross; alluding to the leaves being placed crosswise. Nat. Ord. *Rubiaceæ.*

A genus of hardy herbaceous and green-house plants of but little interest. *C. stylosa*, a native of Persia and the Caucasus, is a low-tufted herb with rose-colored flowers, which blooms during the greater part of the summer. It is a desirable plant for rockeries. Propagated by cuttings or from seed.

Cruciate or Cruciform. Shaped like a cross. A flower is said to be cruciate, when four petals are placed opposite each other at right angles, as in any of the Brassica tribe.

Cruci'feræ. A large and important order of annual, biennial or perennial herbs, rarely suffruticose. They are very generally distributed, but abound most in the cold and temperate regions, especially in Europe. They are all nitrogenous (and contain sulphur), pungent, stimulant, anti-scorbutic, often acrid. Not one of them is poisonous, but many are culinary vegetables. The order contains some well-known flowering plants, such as the Stock, Wall-flower, Rocket, etc. *Brassica oleracea* is the origin of the Cabbage, Cauliflower, Broccoli, Savoy and Curled Kale. *Brassica Rapa* is the origin of the Turnip, but the Swedish Turnip is thought by some to be a variety of *Brassica campestris*, while others think it is a hybrid between *B. Rapa* and *B. Napus*, the wild Navew Rape, or Coleseed. *Crambe maritima* supplies Sea-Kale, which is blanched to fit it for the table. Some plants of the order are pungent, as *Sinapis nigra*, Black Mustard, from the seeds of which the best mustard is made; *S. alba*, White Mustard, is less pungent. Other pungent plants are *Lepidium sativum*, common Cress; *Nasturium officinale*, Water Cress; *Cochlearia Armoracia*, Horse-Radish; and *Raphanus sativus*, the Radish. *Isatis tinctoria*, Woad, yields a blue dye; and *I. indigotica* is used as Indigo in China. *Cochlearia officinalis* grows on the sea-shore, and has been used by ships' crews affected with scurvy, and has

hence been called Scurvy Grass. The seeds of many species yield an oil, such as oil of Mustard, Rape oil, and Camelina oil, and the cake left after pressing the oil from Rape seed is used as food for cattle. There are about 170 known genera, and 1,200 species. *Brassica, Cheiranthus, Erysimum, Arabis, Lunaria, Draba, Teesdalia, Hesperis, Isatis, Capsella*, etc., are illustrative genera.

Crypta'nthus. A genus of Bromeliads, closely allied to *Billbergia* and *Tillandsia*, and requiring the same general treatment.

Cryptochi'lus. From *kryptos*, hidden, and *cheilos*, a lip; the lip or labellum being partly hidden by the sepals. Nat. Ord. *Orchidaceæ*.

An interesting genus of terrestrial Orchids from the cooler parts of India. There are but two species, one producing brilliant scarlet flowers on a one-sided spike, while the other has smaller yellow flowers produced in the same manner. They require the same treatment as *Stanhopea*.

Cryptoco'ryne. From *kryptos*, hidden, and *koryne*, a club; the club-shaped spadix or spike in the center of the flower is hidden by the hooded spathe. Nat. Ord. *Aroideæ*. Allied to *Arum*.

Herbaceous perennial marsh plants with tuberous creeping roots. They produce the same peculiar-looking flowers as the Arums, but are sweet-scented, and require the same treatment as the tropical species of Arum. Propagated by division. Introduced from the East Indies in 1824.

Cryptoga'mia. Cryptogams. Many names have been applied to the vast class of plants comprehended under this name, such as Asexual, or Flowerless Plants, Acrogens, Agamæ, Anandræ, Acotyledons, Cryptogams, Cryptophyta, Cellulares, Exembryonata, etc. Of these the term, *Cryptogamia*, has been adopted by Berkeley and others as being the least objectionable in our present state of knowledge. Under this name are included all those plants called by Linnæus *Cryptogamia*, because he was unable to discover their organs of fertilization, if they had any. They comprehend Sea-weeds, Fungi, Lichens, Mosses, Ferns and their allies. It is now known that all are multiplied by a sexual apparatus in structure wholly different from that of Phænogamous plants, but in function the same. In the higher orders, that is to say, in Ferns, Lycopods, and Horsetails, the plant, properly so called, does not proceed directly from the spore or seed, but from a rudimentary intermediate organ, called prothallium, on which the organs of fertilization are formed, these organs not producing a spore or seed, but the very plant itself.

Cryptogra'mme. A genus of hardy ferns synonymous with *Allosorus*, which see.

Cryptome'ria. Japan Cedar. From *kryptos*, hidden, and *meris*, a part; the structure of all the parts of the flower being hidden, or not easily understood. Nat. Ord. *Coniferæ*.

C. Japonica, of which there are many forms, is a splendid evergreen tree, from sixty to one hundred feet high, from the north of Japan, where it is found in moist situations. It is hardy in this country, south of Philadelphia, and requires a rich deep soil, with plenty of moisture and protection from cutting winds to fully develop its beauty. It was introduced in 1846, and is increased by seeds or by cuttings.

Cryptoste'gia. From *kryptos*, hidden, and *stego*, to cover; alluding to the corona being concealed within the tube of the corolla. Nat. Ord. *Asclepiadaceæ*.

A small genus of pretty twining green-house shrubs, consisting of two species *C. grandiflora* and *C. Madagascariensis*, the one from India, the other from Madagascar. They are interesting plants, having opposite leaves, and produce large, reddish-white flowers in terminal cymes. Propagated by cuttings. Introduced in 1818.

Cryptoste'mma. From *kryptos*, hidden, and *stemma*, a crown; the crown of the flower being hidden. Nat. Ord. *Compositæ*.

A small genus of tender annuals from the Cape of Good Hope. The flowers are bright golden yellow, borne on hairy stems, and are very showy. They were at one time very common, but have now fallen out of cultivation. The seed should be started in a hot-bed, and the young plants pricked out the latter part of May. They require a warm situation, and a light and rather sandy soil. *C. calendulaceum* has flowers yellow inside and a very dark purple outside, which gives it a very showy appearance. Introduced in 1731.

Crypto'stylis. From *kryptos*, hidden, and *stylos*, a style. Nat. Ord. *Orchidaceæ*.

A small genus of brown-flowered terrestrial Orchids from New Holland, Java, and Ceylon. The species are more curious than beautiful. They should be grown in turfy loam and sand, in equal proportions, in an ordinary green-house temperature. Introduced in 1822.

Cte'nium. Toothache-Grass. From *Ctenium*, a small comb; from the pectinate appearance of the spike. Nat. Ord. *Graminaceæ*.

C. Americanum, the only species, is a strong-growing grass, from three to four feet in height with rough narrow flat leaves. The root has a very pungent taste, and in domestic medicine was used as a remedy for the toothache, hence its popular name. It is common in wet pine barrens from Virginia, southward, and has no agricultural value.

Cuba Bast. The fibrous inner bark of *Paritium* (*Hibiscus*) *elatum*.

Cube'ba. Uninteresting shrubs, indigenous to tropical Asia and Africa. *C. officinalis*, a native of Java, furnishes the cubeb fruits of commerce, which are like Black Pepper, but stalked. Nat. Ord. *Piperaceæ*.

Cubebs. See *Cubeba*.

Cuckoo-Flower. See *Cardamine*.

Cuckoo Pint. *Arum maculatum*.

Cucullate. When the apex or sides of anything are curved inward, so as to resemble the point of a slipper or a hood, as in the lip of *Cypripedium*, the spathe of an *Arum*, etc.

Cucumber. See *Cucumis*.

Cucumber Tree. The popular name of the *Magnolia acuminata*, the young fruit of which resembles a small cucumber.

Cu'cumis. Cucumber. From *Cucumis*, the Latin for Cucumber. Nat. Ord. *Cucurbitaceæ*.

Of the several species included in this genus, *C. sativis*, the common Cucumber, is the best known and of the most importance. It is an

annual plant, a native of the East Indies, and was first introduced into England in 1573. In the East the Cucumber has been extensively cultivated from the earliest periods, as well as most of the other species of gourds. When the Israelites complained to Moses in the wilderness, comparing their old Egyptian luxuries with the manna upon which they were fed, they exclaimed: "We remember the fish which we did eat freely, the cucumbers and the melons." Isaiah, in speaking of the desolation of Judea, says: "The daughter of Zion is left as a cottage in a vineyard, as a lodge in a garden of cucumbers." In Syria and in India immense quantities are eaten by the common people. The probabilities are, however, that their Cucumbers are Melons, though mention is made of the cultivation of both, and late travelers mention large plantations over which constant watch is kept, and fires built at night to keep off the wild dogs and wolves. The many varieties under cultivation are great improvements on the original species; but where and when improvement commenced we have no record; and in looking over the field during the last thirty years, it is about as difficult to say when it will stop. Where Cucumbers are required during the winter and spring months they are generally grown in span-roofed houses, ample provision being made for both bottom and superficial heat. They are generally planted in a row on either side of the house, and trained up on trellises under the glass. Where space is limited they may be grown in large pots, and trained up a rafter, top-dressing occasionally with rich soil and supplying liquid or artificial manure. A temperature of about 60° at night is found the most suitable, a higher temperature being apt to draw the plants and make them long jointed. Red Spider, Thrips and Green Fly are their worst insect enemies, and must be kept down by regular fumigating with tobacco, and careful syringing. The principal sorts grown for forcing are the two English varieties, Telegraph and Blue Gown, both long-fruited sorts and extremely prolific and long-lived. White Spine is also forced to a considerable extent, a marked preference being accorded it in the New York markets, while the long-fruited sorts are the favorites in Boston and Philadelphia.

Cucu'rbita. Gourd. From *curbita*, a gourd. Nat. Ord. *Cucurbitaceæ*.

This is an extensive genus of trailing annuals, producing what is commonly known as Ornamental Gourds, some of which are exceedingly curious and beautiful. They are of easy culture, requiring the same treatment as the Cucumber. Natives chiefly of hot countries, they abound in India and South America, a few are also found in the north of Europe, at the Cape of Good Hope and in Australia.

Cucurbita'ceæ. A natural order of succulent, climbing plants with tendrils in place of stipules, alternate palmately-veined, rough leaves, and staminate and pistillate flowers. They are chiefly natives of hot countries, especially of India and South America; a few are found in the north of Europe and in North America, and some are also met with at the Cape of Good Hope and in Australia. The plants of this order generally possess a certain amount of acridity. The pulp of the fruit of *Citrullus Colocynthis* is the Colocynth of the shops; this is supposed to be the wild gourd of the Bible. *Ecbalium purgans* or *agreste* (*Momordica elaterium*) is called Squirting Cucumber, on account of the elastic force with which its seeds are scattered. *Cucumis sativus* is the common Cucumber, *C. melo* is the Muskmelon, and *Citrullus vulgaris* is the Watermelon. *Cucurbita Pepo*, the Gourd, is a scrambling plant, to which belong the Vegetable Marrows, which are edible; the Orange Gourds, which are bitter; the Egg Gourds, Crooknecks, Turk's Caps, and Warted Gourds. *C. maxima* is the Pumpkin, and *C. Melopepo* the Bush Squash. The seeds of *Hodgsonia* are eaten in India. *Lagenaria vulgaris* is the Bottle or Dipper Gourd. The fruit of *Luffa acutangula* is cut up when dry and used as a flesh brush under the name of Towel Gourd. *Sechium edule* yields an edible fruit called Choco or Chaca. The species of *Bryonia* are purgative. There are about seventy known genera and over 400 species. *Cucurbita*, *Cucumis*, *Citrullus*, *Momordica*, *Coccinia*, *Tricosanthes*, *Luffa*, and *Bryonia* are examples of the order.

Culm. The straw of Wheat, Rye, etc.; a kind of hollow stem.

Cultivator. This is the general name applied to implements for stirring the soil, other than hoes, whether used by hand or by horse-power. There are scores of kinds in use, known under different names. The one we most prefer for use in garden operations for cultivating between rows, is what is known as the Planet, Jr. This is a combined drill, wheel-hoe, cultivator and plow, and is really a most excellent and valuable implement, combining in one, three implements, all nearly as effective as any of them would be separately. It is unquestionably the most popular as it is the most perfect machine of its kind made, at present writing. In small gardens, where a horse is seldom used, it is invaluable for working the coarser crops, such as corn, potatoes, cabbage, celery, etc.

Cultrate, Cultriform. Shaped like a pruning-knife, as in *Crassula cultrata*.

Culver's-root, or Culver's Physic. A common name for *Veronica Virginica*.

Cumi'num. Altered from *quamoun*, its Arabic name. A genus of Fennel-like *Umbelliferæ*, of little interest except *C. Cyminum*, the seeds of which, called Cummin, are sometimes used as Carraways, but the latter are more agreeable and efficacious.

Cummin. *Cuminum Cyminum.*

Black. The pungent seeds of *Nigella sativa*.

Cummi'ngia. Named after *Lady Gordon Cumming*, of Altyre, near Forres, Scotland. Nat. Ord. *Liliaceæ*.

A small genus of beautiful little half-hardy bulbs from Chili, which succeed in a light rich soil, and should have the protection of a frame. The flowers are bell-shaped, light blue, and borne in panicles on slender scapes. Propagated by offsets. Introduced in 1823.

Cundura'ngo. The Condor Vine of New Grenada, a species of *Gonolobus*, named *G. Cundurango*, by *M. Friana*. When first intro-

duced this plant became famous, owing to the reputed efficacy of the stems in the cure of cancer; a reputation its merits would not sustain.

Cuneate. Wedge-shaped; the broadest end uppermost, tapering to the base.

Cuni'la. Dittany. The derivation of this word is doubtful; by some botanists it is supposed to be from *konos*, a cone, and by others from *Cunila*, the name of a town. Nat. Ord. *Labiatæ*.

Native hardy herbaceous perennials, common on dry hills from New York to Illinois and southward. They produce clusters of small white or purplish flowers from July to September. Propagated by root division.

Cunningha'mia. In honor of two brothers, *J.* and *A. Cunningham*, British botanists in Australia. Nat. Ord. *Coniferæ*.

C. Sinensis, the only known species, is a lofty evergreen tree, native of South China. It bears a close resemblance to the Araucarias, the foliage, however, being of a brighter green and less rigid. It is too tender for our climate, but its elegance makes it welcome in any conservatory where there is room for its development. Propagated from seed. Introduced in 1804.

Cuno'nia. Named after *John C. Cuno*, of Amsterdam, who described his own garden in verse, in 1750. Nat. Ord. *Saxifragaceæ*.

C. Capensis, the only species, is a small tree, a native of the Cape of Good Hope, where it is called, "Rood Elze," by the settlers. The dense racemes of small white flowers, are axillary and opposite, the leaves pinnate with oblong coriaceous serrated leaflets. It is quite an ornamental green-house plant, and is easily increased by cuttings. Introduced in 1816.

Cup Plant. A popular name for *Silphium perfoliatum*.

Cupa'nia. Named after *Francis Cupani*, an Italian monk, who wrote on botany. Nat. Ord. *Sapindaceæ*.

A genus of ornamental green-house evergreen trees, chiefly natives of Mexico and the West Indies. The species vary in height from six to twenty feet, and produce beautiful white flowers. One species, *C. pendula*, a native of tropical Australia, is a lofty-growing tree, and furnishes the beautiful wood known as Tulip Wood, so called from its Tulip-like markings. The species are increased by cuttings.

Cu'phea. From *kyphos*, curved; referring to the form of the seed-pods. Nat. Ord. *Lythraceæ*.

An extensive genus of green-house evergreens, and half-hardy annuals. With a few exceptions, such as *C. platycentra*, commonly known as "Segar Plant" and "Fire Cracker Plant," they are of but little merit. *C. platycentra* makes a beautiful border and room plant. It is propagated readily by cuttings, grows freely, and produces its scarlet and purple tubular flowers in great profusion nearly the whole year. Introduced from Mexico in 1845.

Cupre'ssus. Cypress. From *kuo*, to produce and *parisos*, equal; in reference to the symmetrical growth of some of the species. Nat. Ord. *Coniferæ*.

An extensive genus of hardy evergreen trees, widely disseminated. *C. sempervirens*, the common European Cypress, is a native of Persia, but has for so long a time been generally planted throughout the East, that it is impossible to ascertain the section where it is indigenous. The timber of this species is highly esteemed for its durability, being considered superior to cedar. The doors of St. Peter's Church at Rome, which had been formed of this wood in the time of Constantine, showed no signs of decay when, after the lapse of a 1100 years, Pope Eugenius IV. took them down to replace them by gates of brass. In order to preserve the remains of their heroes, the Athenians buried them in coffins of Cypress; and the chests or coffins in which the Egyptian mummies are found are usually of the same material. *C. thyoides* is the White Cedar or Cypress of our Southern States, a graceful and beautiful tree in its native home, but which only thrives in wet places. There are several species found in California and Oregon, some of which are magnificent trees; others are graceful and ornamental shrubs. The beautiful *Retinosporas* of Japan are nearly related to this genus. A number of species, known as *Cupressus*, are now placed under *Chamæcyparis*, by some authors.

Cupreus. Of copper color, yellowish-red with considerable mixture of gray.

Curcu'ligo. From *curculio*, a weevil; the seeds having a point resembling the beak of a weevil. Nat. Ord. *Amaryllidaceæ*.

A genus of green-house herbaceous plants of which the only species worthy of cultivation is *C. recurvata*, and its variegated forms. They have large palm-like ribbed leaves, beautifully recurved; most ornamental and useful for green-house or conservatory decoration. They are of easy cultivation growing freely in a compost of turfy loam and sand, and are readily propagated by suckers which form at the base of the stem. Introduced from Bengal in 1805.

Curcu'lio. The Plum Weevil. See *Insects*.

Cu'rcuma. Turmeric. From *kurkum*, its Arabic name. Nat. Ord. *Scitaminæ*.

An extensive genus of herbaceous perennials, natives of the East Indies, China and Java. Most of the species possess the same aromatic stimulating properties in the roots, or rhizomes, and seeds, as the common ginger, and are plants of considerable beauty from their colored bracts. *C. longa* is one of the best known species, the powdered root of which is the Turmeric of commerce. This powder is used in India as a mild aromatic and for other medicinal purposes. It also enters into the composition of curry powder, and a sort of arrow-root is made from the young tubers. Turmeric is a dye of a very rich color, but it possesses no durability, nor has there been any combination of mordants found that would give it this quality in a sufficient degree to make it useful. Several of the species, with yellow or reddish flowers, are cultivated in the green-house.

Curl. A disease of Potatoes, referable to Chlorosis. The tubers produce deformed, curled shoots, of a pallid tint, which are never perfectly developed, and give rise to

minute tubers. It is a local disease, however, and its cause is not certainly known. It is distinct from the curled foliage produced by the presence of Aphides. This term is also applied to a serious disease affecting the leaves of the Peach tree, in which they are curled and blistered. Some attribute the disease to Aphides, and others to Fungi. There is no known remedy but the destruction of the tree.

Curme'ria. Derivation of name not given. Nat. Ord. *Aroideæ.*

A small genus of green-house herbaceous perennials, natives of Colombia. *C. Wallisii* is a dwarf-growing species, and of a very ornamental character. The leaves are spreading, and strongly marked with very irregular dark-green spots or blotches, intermixed with broad patches of very pale yellowish-green. *C. picturata* has broad green leaves, with a broad central band of silvery gray. They were introduced to cultivation in 1875, and are highly esteemed in a collection of variegate l-leaved plants. Propagated by offsets from the roots.

Currant. Buffalo or Missouri. *Ribes aureum.*
Common Red. *Ribes rubrum.*
New Zealand. *Aristotelia fruticosa.*
Red Flowering. *Ribes Sanguineum.*

Cuscu'ta. Dodder. From *kechout*, its Arabic name. Nat. Ord. *Cuscutaceæ.*

These plants are deserving of attention from their parasitical character, as they will attach themselves to, and grow on any other plant within their reach. Their long twining stems emit an abundance of small fragrant flowers towards the end of summer. Their seeds germinate in the earth, but detach themselves as soon as sufficiently grown to take hold of a neighboring plant. They are natives of South America, New Holland, other tropical countries, and the United States. The *Cuscuta* is becoming troublesome in the Southern States by overrunning other vegetation. It is particularly so to Oleanders, several instances being reported where it has completely destroyed these beautiful shrubs. In California there has been much trouble in fields of Alfalfa from a species of Cuscuta, which, it is stated, was introduced with Alfalfa seed from Chili. The only cure, when it gets into a field, consists in cutting the crop before the Dodder matures any seed and repeating the process as long as the Dodder makes its appearance. *C. Gronovii* is very common in low damp grounds, especially in shady places both east and west, chiefly on coarser herbs and low shrubs; its orange-colored stems render it very conspicuous.

Cuscuta'ceæ. A natural order of plants included by some as a sub-order of *Convolvulaceæ.* They are leafless, parasitic, twining herbs, with flowers in dense clusters. The seeds germinate in the soil in the usual way, and afterward become true parasites by attaching themselves to plants in their vicinity, and growing at their expense. They are found in the temperate regions of both hemispheres and are very destructive to some kinds of plants. There are four known genera and upward of fifty species. *Cuscuta, Lepidanche,* and *Epilinella* are examples of the order.

Cushion Pink, or **Ladies' Cushion.** *Armeria maritima.*

Cuspidate. Tapering gradually into a rigid point. A leaf is cuspidate when it suddenly tapers to a point.

Custard Apple. A popular name of *Asimina triloba,* or American Papaw.

Cuticle. The external homogeneous skin of a plant, consisting of a tough membrane overlying the epidermis. The word is also used for the skin of anything, including the epidermis.

Cutting. A portion of a young branch which, when inserted into the earth under suitable conditions, emits roots, and is developed as a distinct individual. See *Propagation by Cuttings.*

Cyana'nthus. From *kyanos*, blue, and *anthos*, a flower. Nat. Ord. *Campanulaceæ.*

C. lobatus is a delicate little hardy herbaceous plant from the higher ranges of the Himalayas, with a habit similar to some species of *Campanula.* Its requirements are a sandy soil, with plenty of moisture during the flowering season, but afterward it should be kept rather dry and allowed to rest. The flowers are terminal, and light blue. Propagated by cuttings.

Cyane'lla. A diminutive of *kyanos* blue. Nat. Ord. *Liliaceæ.*

Pretty green-house bulbs, with white, blue, or yellow flowers. They grow readily in sandy loam, and, like all other plants of the same order, require to have a resting season, which, for convenience, is generally deferred to the winter. The protection of a cold frame is all they require to endure our winters. They increase freely by offsets. Natives of the Cape of Good Hope; introduced in 1768.

Cyanophy'llum. From *kyanos*, blue, and *phyllon*, a leaf; referring to the color of the under surface of the leaves. Nat. Ord. *Melastomaceæ.*

Of this exceedingly interesting plant we take the following description from Lowe's "Beautiful Leaved Plants:" "Native country, tropical America. Introduced in 1857 by Mr. Linden, a Continental nurseryman. A fine woody Melastomaceous hot-house shrub, which has not yet flowered in this country (England). The leaves are truly magnificent, growing two feet long and nine inches wide, of a long oval shape, tapering to a point. Upper surface a distinct ivory-like midrib, with a pair of veins of the same color running from the base near the margin and meeting near the point, joining near the midrib. Margin irregularly serrated. Color a deep velvety green; underneath the veins are visible, and the general color is a rich purplish crimson. Habit strong growing. Nothing can possibly exceed the beautiful foliage of this truly handsome plant." The above description of *C. magnificum* will apply equally well to the other species. Propagated by cuttings.

Cyano'tis. From *kyanos*, blue, and *ous*, an ear; referring to the shape of the petals. Nat. Ord. *Commelynaceæ.*

A small genus of evergreen trailing plants, allied to *Tradescantia,* and requiring the same general treatment. The species are showy plants, natives of tropical Asia. They are

propagated readily by cuttings. Introduced in 1770.

Cya'thea. From *kyatheion*, a little cup; in reference to the appearance of the spore or seed cases on the back of the leaves. Nat. Ord. *Polypodiaceæ*.

An extensive genus of arborescent Ferns, abundant in South America and in the West Indies, in India, the Eastern Islands, and in the Pacific Islands; a few are also met with in New Zealand and South Africa. In some the trunk is short, but in others it reaches a height of forty to sixty feet, and is crowned with a magnificent head of fronds, which are in many cases of gigantic size, and are always large. *C. medullaris*, a native of New Zealand and the Pacific Isles, and known in gardens as a noble Tree Fern of comparatively hardy character, forms in its native country a common article of food with the natives. The part eaten is the soft medullary substance, which occupies the center of the trunk, and which has some resemblance to Sago. *C. dealbata*, another beautiful species of New Zealand, is said to be eaten in the same way. This has a trunk from ten to fifteen feet high, crowned with a noble tuft of fronds, which are white beneath with a silvery powder. Propagated by spores. First introduced in 1793.

Cyatho'des. From *kyathos*, a cup, and *eidos*, like; because the nectary resembles that vessel. Nat. Ord. *Epacridaceæ*.

An interesting and somewhat extensive genus of green-house evergreens, natives of Australia, and occasionally met in New Zealand and the Pacific Islands. They produce small axillary white or yellow flowers. They are propagated by cuttings and require the same treatment as recommended for the Epacris.

Cycadaceæ. A natural order of small, palm-like trees or shrubs, with unbranched stems and pinnate leaves, usually rolled up like a crosier while in bud. They are chiefly natives of the tropical and temperate regions of America and Asia, but are also found in southern Africa and in Australia. The plants are mucilaginous and starchy. *Cycas revoluta*, one of the best known, is a native of Japan, and supplies a kind of starch which is used as Sago; and a similar kind of false Sago is supplied by *C. circinalis* in the Moluccas. Caffre bread is made from the starch of a Cape species of *Encephalartos*. In the West Indies a kind of Arrow-root is obtained from some species of *Zamia*. There are seven known genera and about fifty species. *Cycas*, *Zamia*, *Encephalartos*, and *Dion* are examples of the order.

Cy'cas. The Greek name of a Palm said to grow in Ethiopia. Nat. Ord. *Cycadaceæ*.

A remarkable genus of ornamental plants, consisting of low-growing trees, with cylindrical, usually unbranched stems, terminated at the top by a crown of handsome, deeply-cut, pinnate leaves of thick texture. *C. revoluta*, the finest of the species, is grown extensively in China and Japan, its native countries, for the pith contained in its trunk, and which is prepared by the natives into an article of food similar to the Sago, upon which they live wholly for several months in the year. They are commonly, but erroneously, called Sago

Palms, as they furnish none of the Sago of commerce. Their cultivation in our houses is the same as is required for all the Palm tribe; plenty of pot room, and a strong, moist heat. *C. revoluta*, however, may be wintered in a low temperature, and its new growth retarded for the lawn. After the leaves have perfected their growth and are thoroughly hardened, the plants can be placed upon the lawn during summer, where they are most appropriate ornaments. Young plants are usually obtained from suckers, but as it takes many years to grow these to any useful size, large numbers of the trunks, minus leaves and roots, varying in height from one to seven feet, are annually imported from Cuba and the West Indian Islands, which being placed in heat, soon make good plants. Several large consignments have also been received of late years from Japan. This genus was first introduced into England from China in 1737.

Cy'clamen. From *kyklos*, circular; referring to the round leaves. Nat. Ord. *Primulaceæ*.

This genus contains some of our most popular and desirable plants for fall, winter, and early spring flowering. They are all neat and dwarf in habit; all have foliage of pretty form and beautiful markings, and the flowers, in every case, are beautiful, some exquisitely so. *C. persicum* stands at the head of the family, and is the one in most general cultivation. The Cyclamen should be grown from seed, which should be sown as soon as ripe, in gentle heat, in pans filled with a compost of well-rotted manure, leaf mould, and coarse sand thoroughly incorporated. As soon as the plants have made two leaves, prick out into thumb-pots filled with the same compost, and place upon the shelf in the green-house, near the glass, and shade from direct sunlight. Carefully water; to dry them or drown them is equally fatal. As soon as the pots are filled with roots, shift into a three-inch pot, observing the same instructions in all respects. By the first of September they will require a five-inch pot. With proper care and attention, they will be in flower in December and January following planting. They require a more even temperature than is usually given to green-house plants, not above 60° nor below 50°; with it bulbs two inches in diameter can be grown in one year. After flowering, they should be gradually ripened off, but never allowed to become thoroughly dry. During summer keep them in a frame, shaded, and give occasionally a little water. They should be repotted again about the first of September, reducing the old ball considerably and giving them similar treatment to that previously advised for young plants, but the flowers are generally earlier and smaller a second year. It is not advisable to save plants after this age, as seed sown every year will keep up a stock, and young plants are much to be preferred. This species is a native of Persia. All the species are famous for their acridity, yet in Sicily the Cyclamen is the principal food of the wild boars; hence the common name of *Sow-bread*.

Cyclantha'ceæ. A natural order of perennial herbs or shrubs, all natives of tropical America. It is very closely allied to *Pandanaceæ*, and embraces four genera and about thirty-five species. *Carludovica palmata*, which

yields the much-valued straw from which the Guyaquil or Panama hats are manufactured, is the best known representative of the order.

Cycla'nthera. A free-growing Mexican climber, belonging to the *Cucurbitaceæ*. It has handsome foliage, and pretty oval-shaped fruit, exploding when ripe.

Cyclan'thus. From *kyklos*, a circle, and *anthos*, a flower; in allusion to the spiral arrangement of the flowers. Nat. Ord. *Cyclanthaceæ*.

A remarkable genus of tropical American, perennial, stemless, milky herbs. *C. discolor* has bifid lanceolate leaves, with a tapering point, more or less frilled at the edges. The young leaves are streaked, of a tawny orange hue, which passes off as they become matured. Introduced from Guiana in 1882. Syn. *Cyclosanthes*.

Cyclobo'thra. From *kyklos*, a circle, and *bothros*, a pit; in reference to a cavity at the bottom of each sepal. Nat. Ord. *Liliaceæ*.

A genus of very handsome bulbous plants from California and Mexico. They are allied to the *Calochortus*, and require the same treatment. The flowers are nodding, like those of the Fritillarias, and of white, yellow, and purple colors. They are easily propagated by the small bulbs that grow on the upper part of the stems.

Cyclo'gyne. From *kyklos*, a circle, and *gyne*, a stigma, or female organ; in reference to the disposition of the pistils. Nat. Ord. *Leguminosæ*.

A very beautiful green-house evergreen shrub from Swan River. It is remarkable for the appearance of the pinnate leaflets, which are clad underneath with white hairs; and this, with the profusion of purple flowers it bears, renders it an attractive object. Propagated by seeds or cuttings.

Cycno'ches. Swan Neck. From *kyknos*, a swan, and *auchen*, the neck; in reference to the long and gracefully curved column. Nat. Ord. *Orchidaceæ*.

Some of the species are considered indispensable to the Orchid house, for the beauty and delightful fragrance of the flowers. They require strong heat and moisture.

Cydo'nia. Quince. The name of *Cydonia* was given to this plant by the ancients, from its growing abundantly near Kydon, in the isle of Crete, now Candia. Nat. Ord. *Rosaceæ*.

The common Quince, *C. vulgaris*, has been under cultivation from a very early period. Pliny says: "There are many kinds of this fruit in Italy; some growing wild in the hedgerows, others so large that they weigh the boughs down to the ground." Martial, who died at Rome A. D. 104, states that the Romans had three sorts of Quinces, one of which was called Chrysomela, from its yellow color. They boiled them with honey, as the Europeans make marmalade. Botanical researches show that the Quince grows spontaneously on the hills and in the woods of Italy, in the south of France, in Spain, Sicily, Sardinia, the Crimea, and in the south of the Caucasus; it also grows abundantly on the banks of the Danube, and in the north of Africa. "The learned Goropius maintains that Quinces were the golden apples of Hesperides, and not Oranges, as some commentators pretend. In support of his argument he states that it was a fruit much revered by the ancients, and he assures us that there has been discovered at Rome a statue of Hercules that held in its hand three Quinces. This, he says, agrees with the fable which states that Hercules stole the golden apples from the gardens of the Hesperides." This species is unquestionably the parent of the several varieties under cultivation. There seems to have been but little improvement in this fruit in centuries. The great difference in the quality of this fruit, as seen in our markets, is largely due to cultivation. The common practice of planting the Quince in some neglected corner results in getting small, knotty fruit, almost if not altogether worthless. The Quince should have a deep, rich soil, rather heavy, and the ground should be kept clean and free from grass. Attention should also be paid to pruning, as a preventive against slugs and other vermin. The trunks and branches should be thoroughly rubbed over with strong soft-soap every spring. With this simple precaution the failure of a crop of large, clean, healthy fruit will be very rare. The propagation of the Quince is very simple, the more rapid way being to take cuttings from the young wood in autumn, heel them in in some protected place during winter, and plant out in spring in a shaded situation, and they will take root very readily. *C. Japonica*, Syn. *Pyrus Japonica*, is a beautiful dwarf species, remarkable for the brilliancy of its blossoms, which vary from the richest scarlet to the most delicate blush color. It is a native of Japan, perfectly hardy, and well adapted for single plants on the lawn, or for planting ornamental hedges. The fruit has a delicious fragrance, but is entirely worthless for domestic purposes. This species is best propagated by root cuttings. *C. Maulei*, dwarfer and more compact in habit than *C. Japonica*, has bright red flowers and golden yellow fruit, produced in great abundance, and which makes an excellent conserve. It is one of the most beautiful plants of comparatively recent introduction.

Cylindrical. Cylinder-shaped; approaching closely to the form of a cylinder, as the stems of grasses, etc.

Cyli'sta. From *kylitos*, twining; referring to the habit of the plants. Nat. Ord. *Leguminosæ*.

A genus of ornamental climbing plants. *C. scariosa*, found in the Bombay districts of India, is a very ornamental climber, requiring to be grown in a hot-house, as do most of the genus. The flowers are very showy, bright, yellow, borne on erect bracted racemes, and are remarkable for their large papery calyx, which is very conspicuous. Propagated by cuttings. Introduced in 1776.

Cymbi'dium. From *kymbos*, a hollow recess; referring to a hollow recess in the lip or labellum. Nat. Ord. *Orchidaceæ*.

A genus containing both terrestrial and epiphytal Orchids, many of them of rare beauty, and all worthy of cultivation. *C. Sinense*, a native of China, is remarkable for its delicious fragrance. The epiphytal species require the treatment of hot-house Orchids; the terrestrial ones do well in a green-house temperature.

CYM

Cy'mbiform. Having the figure of a boat in miniature; that is to say, concave, tapering to each end, with a keel externally, as the glumes of *Phalaris Canariensis*.

Cyme. A form of inflorescence, resembling a flattened panicle, as in the *Laurustinus* and the Elder (*Sambucus*).

Cy'nara. Cardoon. Artichoke. From *kyon*, a dog; in reference to the spines of the involucrum resembling dog's teeth. Nat. Ord. *Compositæ*.

C. cardunculus, the Cardoon of the garden, very much resembles the Artichoke; it is a hardy perennial, a native of the south of Europe and the northern parts of Africa. The stalks of the leaves, or ribs, as they are usually termed, are blanched, and when properly cooked constitute a tender and excellent vegetable, much used in France, but not generally cultivated in other countries. The flowers, like those of the Artichoke, have the property of curdling milk. See *Artichoke*.

Cyno'don. Bermuda Grass, Scutch Grass. A small genus of grasses but little known, except *C. Dactylon*, a native of southern Europe, and all tropical countries. It is a common pasture grass in the West Indies, and the Sandwich Islands, and has long been known in the United States, though it is only of late years that its value is becoming appreciated. It is admirably adapted for the Southern States, as it is fitted by nature to withstand drought and the scorching rays of the sun better than any other grass. In the East Indies (where it is called, Doub or Doorba, by the natives) and in all tropical countries, this grass is highly esteemed for its drought-resisting qualities, and also for the peculiar habit of its growth; the wiry roots of grass in running over the surface of the ground form a strong fibrous matting. It has numerous joints from each of which roots strike down and blades shoot up. This has caused it to be sown largely for the purpose of binding banks of creeks and dams, etc. It makes a perfect carpet of roots, enabling it to withstand traffic which would completely kill any other grass. For lawns it is also highly prized, as while all other grasses are burned up during the hot season, Bermuda Grass will look comparatively green, and if watered and regularly mown, it will make quite a velvety carpet. The only drawback is that in winter it looks a little brown. It should be sown in the spring, as it will not germinate until warm weather comes. As a grass for hay or pasture, it matures and gives its first cutting ordinarily in June. Persons having the most experience with Bermuda Grass, place the average yield of hay for ten years at four tons per acre per annum. This is a cautious and safe estimate of its productiveness. It grows wherever corn and cotton grow. On poor land Bermuda Grass is stumpy and coarse; on rich land its growth is free, and its blades are long, tender and delicate. Properly cultivated in southern latitudes, animals prefer this grass and the hay made from it over all other varieties. Like Japan Clover, it does not succeed further north than Virginia.

Cynoglo'ssum. Hound's Tongue. From *kyon*, a dog, and *glossa*, a tongue; referring to the shape of the leaves. Nat. Ord. *Boraginaceæ*.

CYP

Pretty border plants, producing flowers of almost all colors. They grow in any soil, and are not very particular as to situation, and are increased readily by division of the stools in the spring. The annuals and biennials are grown from seed.

Cynosu'rus. Dog's-tail Grass. From *kyon*, a dog, and *oura*, a tail; from its resemblance to a dog's tail, whence its common name. Nat. Ord. *Graminaceæ*.

A small genus of grasses, but one of which, *C. cristatus*, the Crested Dog's-tail Grass, is of value to the agriculturist. This species is common in England, in dry pastures, often forming a considerable portion of the turf on gravelly soils. For such soils it is a valuable grass, being greatly relished by sheep, but is not much liked by cattle. The slender straws of this grass are valuable for making hats, being far superior even to the fine wheat plant cultivated for the purpose in Italy.

Cype'lla. From *kypellon*, a goblet, a cup; referring to the form of the flowers. Nat. Ord. *Iridaceæ*.

A genus of very pretty half-hardy bulbs, worthy of a place in the green-house. They are multiplied by offsets. Introduced in 1823.

Cypera'ceæ. A natural order of grass-like, tufted plants, having solid, usually jointed, and frequently angular stems; leaves with their sheaths entire (not split, as in Grasses); and very generally distributed all over the world, abounding in moist places. Some of the Sedges are demulcent, others are bitter and astringent. Some, by means of their creeping underground stems, bind together the loose sands of the sea-shore. Their cellular tissue is sometimes used for paper, and the underground stems of several species of Cyperus are used for food. The underground stems of *Carex arenaria* are used for Sarsaparilla. The species of *Eriophorum*, or Cotton Grass, have long, white, silky hairs surrounding the fruit. *Papyrus antiquorum* (also called *Cyperus*) appears to be one of the plants called Bulrush in the Bible. It formerly grew abundantly at the mouth of the Nile, which was hence called papyriferous by Ovid, but it is now gone. The cellular tissue of its stems was used in place of paper. *Scirpus lacustis*, the Bulrush, is used for making mats, baskets, and the bottoms of chairs. In South America it is used for making balsas or boats, and a similar use is referred to in Isaiah, xvii., 1, 2. There are 120 known genera and upward of 2,000 species. *Cyperus*, *Papyrus*, *Carex*, *Scirpus*, *Eriophorum*, and *Cladium* are examples of the order.

Cype'rus. Supposed to be derived from *Cypris*, a name of Venus, from their supposed medicinal qualities. Nat. Ord. *Cyperaceæ*.

A genus of sedge plants, of but little merit for the garden or green-house. *C. alternifolius* is grown as a basket plant; it is of the easiest culture, and will thrive in any soil or situation, but prefers a moist one. A variegated variety of this species is very beautiful, but not constant. They are natives of Madagascar, first introduced in 1781. *C. rotundus* (Nut Grass) is a common and troublesome weed in the Southern States.

Cy'phia. From *kyphos*, curved; referring to the shape of the style and stigma. Nat. Ord. *Campanulaceæ*.

CYCAS REVOLUTA.

CYCLOBOTHRA FLAVA.

CYNODON (BERMUDA GRASS).

CYPERUS ALTERNIFOLIUS.

CYCLAMEN PERSICUM.

CYNOSURUS (DOG'S-TAIL GRASS).

CYNARA (CARDOON).

DAHLIAS (SINGLE).

DARLINGTONIA CALIFORNICA.

DATURA FASTUOSA.

DACTYLIS (ORCHARD GRASS).

CYPRIPEDIUM SPECTABILE.

CYP

A small genus of herbaceous twiners from South Africa. They produce small blue or red bell-shaped flowers, of but little interest. The species are rarely met, excepting in botanical collections.

Cyphoma'ndra. From *kyphoma*, a hump, and *aner*, a man; the anthers form a hump. Nat. Ord. *Solanaceæ*.

A genus of shrubby plants with showy foliage, natives of South America. *C. betacea*, is the Tree Tomato, a handsome shrub, a native of Peru, the small, deep red, egg-like fruit of which is used in the same way as Tomatoes. Propagated by seeds or cuttings. Introduced in 1887.

Cypress. See *Cupressus*.
Black or Deciduous. *Taxodium distachyum.*
Chinese Deciduous. *Taxodium sinense.*
Funeral. *Cupressus funebris.*
Japan. The genus *Retinospora;* especially *R. obtusa.*
Monterey. *Cupressus macrocarpa.*
Nootka Sound. *Cupressus Nutkænsis.*
Oregon. *Cupressus Lawsoniana.*

Cypress Vine. See *Quamoclit.*

Cypripe'dium. Ladies' Slipper, or Moccasin Flower. From *Cypris*, one of Venus's names, and *podion*, a slipper. Nat. Ord. *Orchidaceæ.*

A somewhat extensive genus of terrestrial Orchids, producing flowers of the most singular structure, combined with elegance and beauty. It is remarkable that a family with such marked and distinctive characteristics should find congenial homes in such a diversity of soil and climate. The species are pretty generally distributed, from our most northern States to Mexico, through South America, the Pacific Islands, and India. The State of New York furnishes six species, all beautiful and worthy of cultivation. The native species may all be cultivated in the garden by placing them in a well drained shady border; the soil of which should be liberally mixed with leaf mould. Their unique blossoms render them highly deserving of any care. The best time for transplanting them from their native localities is after they have done blooming, and they should be removed with a ball of earth attached to the roots. Some of the tropical species require the temperature and humid atmosphere of the hot-house, while others do best in the green-house. The most of them however thrive admirably amongst ordinary stove-plants, flower very freely, and continue in perfection a long time. One most important point in their culture is drainage. This must be most thorough and effective, for as these plants have no pseudo-bulbs to sustain them, they must not be dried off, as many other orchids are, during winter, and if the drainage is defective, the roots are sure to decay and the leaves shrivel. The foliage of several of the species is beautifully spotted and marbled with yellow and white, which makes them attractive at all times. There are so many species and varieties now under cultivation, and they are all so beautiful that it is almost impossible to make a selection of only a few kinds. An amateur should therefore begin with a few of the common species, and add to his collection as his taste or fancy dictates. See Orchids. The flowers are greatly valued in the winter months for florists' work. Propagated by division of roots,

CYR

and by seed, which, with most of the species, is a rather delicate undertaking.

Cyri'lla. Named in honor of *D. Cyrillo*, an Italian botanist. Nat. Ord. *Cyrillaceæ.*

A small genus of half-hardy and green-house flowering shrubs, with the habit of some of the larger Andromedas. *C. racemiflora* is common in sandy banks of ponds and streams from the Carolinas south and west. It is a low-growing tree or shrub, with racemes of small white flowers.

Cyrilla'ceæ. A small order of evergreen shrubs or trees, differing from *Ericaceæ* in their free petals and in the anthers opening in slits. Flowers usually racemose. The three genera are *Cliftonia, Costæa* and *Cyrilla.* There are about eight species, all confined to the warmer parts of America.

Cyrta'ndra. From *kyrtos*, curved, and *aner, andros*, a male; alluding to the curved filaments of the perfect stamens. Nat. Ord. *Gesneraceæ.*

A genus of trees and shrubs natives of the Malayan Archipelago and the Pacific Islands. Though embracing about sixty species, only two have as yet been introduced to cultivation, *C. pendula*, from Java in 1883, and *C. Pritchardii*, from Fiji, in 1887. They are both interesting plants, and are increased by cuttings.

Cyrtanthe'ra. From *kyrtos*, curved and *anthera*, an anther. Nat. Ord. *Acanthaceæ.*

A small genus of handsome evergreen plants from South America, which do well in the green-house. They are nearly related to *Justicia;* their flowers are orange, yellow, and rose in color, borne in dense terminal panicles, and they are propagated readily from cuttings. Introduced in 1827.

Cyrta'nthus. From *kyrtos*, curved, and *anthos*, a flower; the flowers bend down from the summit of the scape or stalk. Nat. Ord. *Amaryllidaceæ.*

Very handsome green-house bulbs from the Cape of Good Hope. The flowers, which are borne in umbels on a slender scape, are red, crimson and orange, produced in summer, when they require very liberal watering; they should be grown in pots, and are propagated by offsets. Introduced in 1774.

Cyrto'ceras. From *kyrtos*, curved, and *keros*, a horn; in allusion to the curved horns of the corona segments. Nat. Ord. *Asclepiadaceæ.*

A stove-house evergreen climber with white flowers, tipped with buff. This is now generally regarded as a section of the genus Hoya. *C. multiflorus*, the only species, bears the following synonyms: *Centrostemma multiflorum, Cyrtoceras floribundum, C. Lindleyanum, C. reflexum* and *Hoya coriacea.*

Cyrtochi'lum. From *kyrtos*, curved, or concave, and *cheilos*, a lip; the form of the labellum or lip. Nat. Ord. *Orchidaceæ.*

A genus of small flowering Orchids from Mexico and Guatemala. The flowers are red, yellow, spotted, purple and green. They require a high temperature, and are usually grown on blocks of wood or cork.

Cyrtodei'ra. From *kyrtos*, curved, and *deire*, neck. Nat. Ord. *Gesneraceæ.*

Green-house herbaceous perennials, with beautifully-colored foliage, and solitary flow-

ers on short axillary stems. They make very pretty basket plants for the hot-house, the only place in which they thrive well. They thrive best in sandy loam and leaf mould, and are increased readily from cuttings, and also from seed. This genus is included under *Episcia*, by some authors.

Cyrto'mium. From *kyrtos*, curved; the shape of the spore cases or seed vessels. Nat. Ord. *Polypodiaceæ.*

A small genus of robust evergreen Ferns of very ornamental character. They are natives of India, China, and Japan, and require the hot-house for perfection of growth. Syn. *Aspidium.*

Cyrtope'ra. From *kyrtos*, curved, and *pera*, a small sack; alluding to the sack-like appendage to the labellum or lip. Nat. Ord. *Orchidaceæ.*

A small genus of very beautiful terrestrial Orchids, natives of northern India. In appearance they resemble the *Bletias*, and are usually given the same treatment.

Cyrtopo'dium. From *kyrtos*, curved, and *pous*, a foot; referring to the form of the labellum or lip. Nat. Ord. *Orchidaceæ.*

A genus of beautiful, strong-growing Orchids from Brazil, valued alike for their large spikes of flowers, yellow spotted with red, and for their beautiful foliage. One species, with yellow flowers, has pseudo-bulbs nearly five feet high. The room required to grow them prevents their general cultivation.

Cysto'pteris. From *kystis*, a bladder, and *pteron*, a wing. Nat. Ord. *Polypodiaceæ.*

A genus of beautiful, hardy Ferns, allied to *Microlepia* and *Woodsia.* They are admirably adapted for ferneries and rock work. *C. bulbifera*, a native species, produces large fleshy bulblets in the axils of the upper pinnæ, which fall to the ground and become new plants.

Cy'tisus. From *Cythnus*, one of the Cyclades, where one of the species was first found. Nat. Ord. *Leguminosæ.*

This is an extensive genus, consisting principally of hardy deciduous trees and shrubs, of which *C. Laburnum* (Syn. *Laburnum vulgare*) is a well-known species. They are all very ornamental and free-flowering, and succeed well in almost any soil or situation. They are readily increased by seeds or from cuttings. Introduced in 1596.

D.

Dacry'dium. From *dakru*, a tear; referring to the gummy exudation. Nat. Ord. *Coniferæ.*

A genus of evergreen trees inhabiting the East Indies and New Zealand. The flowers are curious, but not showy. The young branches afford a beverage of the same qualities as root beer. *D. Franklinii*, from Tasmania, furnishes a valuable timber, very durable, which is used for ship and house-building. Some of the wood is beautifully marked, and is used for cabinet work.

Da'ctylis. Orchard Grass. From *dactylos*, a finger; the head is divided so as fancifully to resemble fingers. Nat. Ord. *Graminaceæ.*

A small genus of grasses, the best-known of which is *D. glomerata*, a native of Europe. It is a valuable grass for pastures, as it contains much nutriment when young, and the plant is not injured by close feeding. It grows well under trees, and is, therefore, fitted for orchards, and other shaded places.

Dædalaca'nthus. From *dædalos*, various colored, and *Acanthus*, to which it is related. Nat. Ord. *Acanthaceæ.*

A genus of about fourteen species of shrubs, natives of the East Indies and the Malayan Archipelago. *D. macrophyllus*, the best known species, is an erect, minutely-pubescent, perennial herb, with handsome foliage, and pale violet-blue flowers. It was introduced from Burmah in 1883.

Dæmo'norops. From *dema*, a cord, and *rhops*, a twig; alluding to the rope-like, climbing stems. Nat. Ord. *Palmaceæ.*

This genus of Palms, numbering more than forty species, is closely allied to *Calamus*, to which most of the species formerly belonged. All the species are natives of the eastern hemisphere, principally of the Malayan Peninsula and Islands. They have long, thin, flexible stems, furnished with pinnate leaves, the prickly stalks of which are frequently prolonged into whip-like tails. *D. Draco* (formerly *Calamus Draco*) is a native of Sumatra and other islands of the Indian Archipelago, and is called the Dragon's Blood Palm, in consequence of its fruits yielding a portion of the substance known in commerce as Dragon's Blood. The fruits are about the size of cherries, and when ripe are covered with a reddish resinous substance, which is separated by shaking them in a coarse canvas bag. This resin is the best Dragon's Blood that is obtained, although there are several other plants that furnish a similar article. *D. Palembanicus* and a few other species, natives of Java, have lately been introduced into the green-house as decorative plants, for which purpose they are exceedingly appropriate. The young leaves are of a bright cinnamon brown, and the contrast between this warm color and the deep green of the matured leaves renders the plants very beautiful at the time they are in course of development. Young plants are obtained from seed. In a growing state they require considerable heat.

Daffodil. The common name of *Narcissus Pseudo-Narcissus.* See *Narcissus.*

Dagger Plant and Bayonet Plant. Local names for a species of *Yucca.*

Dahlia. In honor of *Andrew Dahl*, a celebrated Swedish botanist and pupil of Linnæus. Nat. Ord. *Compositæ.*

DAH

This interesting genus, consisting of comparatively few species, shows more plainly the skill of the florist than almost any other in cultivation. Its history is also somewhat curious, as, strange to say, though it has become so great a favorite, and is so universally cultivated, the history of its introduction is very obscure. It is generally said to have been introduced into England by Lady Holland in 1804; but the fact is, it had been introduced many years before that period, and was only brought from Madrid in 1804 by Lady Holland, who apparently did not know that it was already in that country. The first kind of Dahlia known to Europeans, *D. superflua*, Cav., (*D. variabilis*, Dec., *Georgina pinnata*, W.,) was discovered in Mexico by Baron Humboldt in 1789, and sent by him to Professor Cavanilles of the Botanical Garden, Madrid, who gave the genus the name of Dahlia, in honor of the Swedish professor Dahl. Cavanilles sent a plant of it the same year to the Marchioness of Bute, who was very fond of flowers, and who kept it in the green-house. From this species nearly all the varieties known in the gardens have been raised, as it seeds freely, and varies very much when raised from seed. In 1802, *D. frustranea*, Ait., (*D. coccinea*, Cav.,) was introduced from France, in which country it had been raised from seed. It is rather remarkable that the two species did not hybridize together, and that *D. superflua*, or *variabilis*, should produce flowers of colors so different as crimson, purple, white, yellow, orange and scarlet without hybridization. Among all the colors, however, displayed by these varieties, no flowers have yet appeared of blue, and are not likely ever to be, as we find no family of plants in nature in which there are blue, yellow and scarlet in varieties of the same species. These two species and their varieties were the only Dahlias known in English gardens for many years, as, though a few kinds were introduced from time to time from France and Spain, yet, as they did not hybridize with the others, and were rather more tender, they were not generally cultivated, and appear to have been soon lost. Most of these have, however, been re-introduced from Mexico, with several new species, within the last few years, and there are now ten or twelve distinct species, besides innumerable varieties of *D. variabilis*. The most remarkable of the new species is the tree Dahlia, *D. excelsa*, which is said to grow in Mexico thirty feet high, with a trunk thick in proportion. *D. imperialis*, a distinct species, attains a height of ten to fifteen feet, and is of a fine branching form, producing, late in the fall, pure white, drooping, lily-like flowers, three inches in diameter. It flowers rather late to be seen in perfection in the Northern States, but it is a magnificent plant in any section of the country where frost holds off until the 15th of November. The very showy scarlet *D. Juarezii*, commonly called the "Cactus Dahlia," is another distinct species, which, with its many varieties of various shades of color, is very attractive. The single varieties also of *D. coccinea*, from their grace and beauty, are much used for vases or epergnes of cut flowers. They also make distinct and interesting bedding plants, as they flower in great profusion. The colors so far attained

DAL

are scarlet, yellow, rose, crimson, and white, with a great variety between these colors, as in the other classes, making a fine contrast with the yellow disk. The propagation of the Dahlia is quite simple. For amateurs, division of the root will more than supply their needs, as each will divide, if started in a hot-bed or any warm and moist place, into at least six good plants. Young plants of both the single and double sorts are propagated by cuttings taken off old roots, started in heat in February or March, and grown on in pots until time to plant out in the border, which should be done as soon as danger from frost is over. Seeds of either the double or single sorts sown in February, grown on, and planted out in June, will make strong blooming plants by August. To succeed well they should have a strong, deep and rich soil; as they are rapid growers, they are consequently gross feeders, and are much benefited by frequent applications of water during the summer, and by liquid manure after the buds are formed. For perfection in bloom the shoots and flower-buds must be thinned out in the younger stages of growth, but otherwise it will be unnecessary to do so. Some of the dwarfer Pompon varieties have for the last two seasons been flowered in pots, for spring sales, with success, both pecuniarily and otherwise, one firm in the neighborhood of New York having disposed of over 10,000 plants in flower in one season. The dwarf white variety, named *Camelliæflora*, is the favorite for this purpose. The same firm plants two houses of this variety about the first of August, for winter blooming, putting on the sashes just before the first frost, realizing a handsome price for them during winter, or until the houses are required for a spring crop of Geraniums, Fuchsias, etc.

Daisy. Blue. See *Agathea Cœlestis*: also *Aster Tripolium.*
Common. *Bellis*, which see.
Marsh Ox-eye. *Chrysanthemum lacustre.*
Ox-eye, or White. *Leucanthemum vulgare.*
Paris. *Chrysanthemum frutescens.*
Swan River. *Brachycome iberidifolia.*
Western. *Bellis integrifolia.*

Dalbe'rgia. Named after *Nicholas Dalberg*, a Swedish botanist. Nat. Ord. *Leguminosæ.*

A genus of lofty-growing, East Indian evergreen trees. Most of the species are truly magnificent, of immense size, with beautiful pinnate foliage, and produce an abundance of white flowers in axillary racemes. The trees are the most remarkable for the valuable timber they furnish. *D. latifolia* is the Blackwood or East Indian Rosewood tree, common on the Malabar and Coromandel coasts, and yields one of the most valuable furniture woods. The timber is furnished in planks four feet wide, and is of a dark purplish color, very heavy, close grained, and susceptible of a high polish. It lacks the rich perfume of the true Rosewood, and is not so beautifully variegated. In India it is used in the manufacture of their richest furniture. The species yield some of the most valuable timber used in the mechanic arts.

Dalea. Named after *Dr. Samuel Dale*, an English botanist of the last century. Nat. Ord. *Leguminosæ.*

DAL

A genus of shrubby or herbaceous plants with purplish, blue, whitish or rarely yellow flowers, natives principally of Mexico, a few being found in Chili and the southern United States. The genus contains more than 100 species, of which very few are in cultivation. *D. Mutisii*, introduced from South America in 1828, the most showy and best known species, has beautiful dark-blue flowers, disposed in cylindrical heads, flowering in October. It is also known as *Psoralea Mutisii*.

Dalecha'mpia. Named after *James Dalechamp*, a celebrated French botanist. Nat. Ord. *Euphorbiaceæ.*

Evergreen climbers, producing small yellowish-green flowers on axillary peduncles. The genus is small, mostly natives of Brazil, and do best in the hot-house. Propagated by cuttings.

Daliba'rda. Named after *Denis Dalibard*, a French botanist. Nat. Ord. *Rosaceæ.*

D. repens, the only species, is a rather pretty trailing plant, quite common in our northern woods. The flowers are white, and are produced singly or in pairs. It is not cultivated except in botanical collections.

Dalmatian Powder. A well-known insecticide manufactured from the flowers of *Pyrethrum cinerariæfolium.*

Dame's Violet, or **Rocket.** A common name for *Hesperis Matronalis.*

Da'mmara. Kauri Pine. The name of the species in Amboyna. Nat. Ord. *Coniferæ.*

A genus of evergreen trees, similar to our Pines. *D. Australis*, a native of New Zealand, is a tree from 150 to 200 feet in height, producing a hard, brittle, resin-like copal, the principal ingredient of Dammar or white varnish.

Dampie'ra. Named after the circumnavigator, *Captain William Dampier.* Nat. Ord. *Goodeniaceæ.*

Green-house herbaceous perennials from New Holland, of easy culture. Flowers blue, both axillary and terminal. Propagated by cuttings of young shoots or by division.

Damping off. A term applied to the premature decay of the leaves, flowers, or stems of plants. Its effects are most marked on young and tender seedlings when crowded together, or placed under unsuitable atmospheric conditions. Damping off amongst cuttings is often caused by allowing them to become too dry, and then suddenly applying too much water. The water is generally blamed when the actual cause is drought and the sudden change subsequently caused by the water. When damping is detected amongst tender seedlings they should be immediately separated and transplanted singly in fresh soil. This will invariably check it, but the operation is best performed before damping begins.

Damson. A group of small fruited varieties of the Plum.

Dancing Girls. Opera Girls. See *Mantisia.*

Dandelion. See *Taraxicum.*

Dane-wort, or **Dane's Blood.** *Sambucus Ebulus.*

Dangle-Berry. A common name for *Gaylussacia frondosa.*

DAS

Dantho'nia. Wild Oats Grass. Named in honor of *M. Donthoine*, a French botanist. Nat. Ord. *Graminaceæ.*

An extensive genus of grasses, having in their native habitat the widest geographical range. Some of the species are common on poor soils in this country. *D. spicata*, one of the most common species, is popularly known as Wild-Oats Grass.

Da'phne. From *daio*, to burn, and *phone*, a noise; it crackles when burning. Nat. Ord. *Thymelaceæ.*

An extensive genus of small shrubs, mostly evergreen, with very beautiful, fragrant flowers, natives chiefly of Europe, but partly also of the cooler parts of Asia, including Japan and China. Some of them are hardy shrubs, valued for their early spring flowers. *D. Cneorum*, the Garland Flower, is a hardy spreading evergreen shrub, growing about a foot high, and producing its beautiful bright pink or crimson, deliciously sweet-scented flowers in terminal clusters in April and May, and occasionally again in September. On account of its dwarf habit it is especially suitable for planting on rock-work, or for edgings to beds; it is propagated by layers. *D. odora*, a native of China, is a green-house evergreen, succeeding best when planted out in a cool house; this species and *D. Indica* are grown extensively for cut flowers, which are highly esteemed for their delicious fragrance. They grow freely from cuttings. Introduced in 1771.

Da'rea. Named after *Dar*, a botanist. A genus of Ferns allied to *Asplenium.*

Darlingto'nia. Named in honor of *Dr. Darlington*, one of our most distinguished botanists. Nat. Ord. *Sarraceniaceæ.*

This remarkable genus consists of but one species, *C. Californica*, which is found in the marshy districts of California, and is commonly known as the California Side-Saddle Flower, or Pitcher Plant. It is a perennial herb, and can be grown in an ordinary cool green-house. The plants should be potted in sphagnum, leaf-mould and sand. Propagated by division and from seed. Dr. Torrey gave the first description of this plant in 1853.

Darnel. A common name for the *Lolium*, which see.

Darwinia. Named after *Dr. Darwin*, author of the "Botanic Garden." Nat. Ord. *Myrtaceæ.*

A small genus of low-growing, heath-like, evergreen shrubs, found in the extra tropical regions of Australia. The leaves are marked with transparent dots. *D. macrostegia*, much better known as *Genetyllis*, or *Hedaroma tulipifera*, has numerous campanulate, tulip-like flowers, nearly one and a half inches long, borne in terminal fascicles. The petal-like inner bracts are pale yellow, streaked with red, the petals white. It is a very showy and ornamental plant, and is easily increased by cuttings of the half-ripened wood. Introduced in 1854.

Dasyli'rion. From *dasys*, thick, and *leirion*, a lily; the plants are succulent. Nat. Ord. *Liliaceæ.*

A small genus of green-house evergreen plants from Mexico. The flowers, like most of this order, are quite interesting. They require similar treatment to the tender species

of Yucca, and are increased by suckers. Introduced in 1830.

Date. Chinese. A name given by foreign residents in the northern provinces of China to the fruit of a *Zizyphus*, allied to or probably an improved variety of *Z. Jujuba*.

Date Palm. See *Phœnix*.

Date Plum. See *Diospyros*.

Dati'sca. A very graceful herbaceous perennial of the Nat. Ord. *Datiscaceæ*, closely allied to the Begonias, well suited for a collection of hardy, fine-leaved plants, and also as isolated specimens. Flowers yellow, in long, loose axillary racemes. Native of Crete and western Asia.

Datisca'ceæ. A small natural order closely allied to the Begonias. The plants consist of a few species which are scattered over North America, northern India, Siberia, the Indian Archipelago and southern Europe. There are but three genera, *Datisca*, *Tetrameles* and *Tricerastes*, and these comprise but four species.

Datu'ra. Jamestown Weed, Thorn Apple, Devil's Trumpet. An alteration of the Arabic name *tatorah*. Nat. Ord. *Solanaceæ*.

Strong growing ornamental annuals, shrubs, or trees. The flowers of some of the annual species are large, very showy, and sweet-scented, *D. ceratocaulon*, white, tinged with purple, *D. Chlorantha fl. pl.*, double yellow, and *D. Meteloides* (Syn. *D. Wrightii*), bluish-violet or white are the most generally cultivated species, and are very showy border annuals. The shrubby species are best known as Brugmansias, under which name they are here described. *D. Stramonium*, commonly known as Thorn Apple, and in some sections as Jimson Weed, is a coarse-growing, troublesome weed, that seems to delight in filthy door-yards. The seeds and stems of the *Datura* are powerful narcotic poisons, and many deaths have resulted from eating the seeds. They are sparingly used in medicine, and the dried root is sometimes smoked as a remedy for asthma.

Daubento'nia. Named after *M. Daubenton*, a celebrated naturalist. Nat. Ord. *Leguminosæ*.

A genus of green-house evergreen shrubs, chiefly remarkable for their curious, quadrangular seed pods, which are three to four inches long, stalked, pointed, and furnished with wings along the angles. Their red or yellow, flowers, resembling the Laburnum, are borne on short axillary racemes. They are natives of Texas and Buenos Ayres. Propagated by seeds and cuttings of ripened young shoots. Introduced in 1820. Syn. *Sisbania*.

Daube'nya. In honor of *Dr. Daubeny*, Professor of Botany in the University of Oxford. Nat. Ord. *Liliaceæ*.

A genus consisting of two species of yellow flowering bulbs from the Cape of Good Hope. They are very dwarf, the flower stalks being from three to six inches high, upon which is borne an umbel of small showy flowers. They are of easy culture, in a dry, warm situation, and with slight protection they will endure our winters. The safer way is to treat them the same as Gladiolus. Propagated by offsets.

Da'ucus. Carrot. From *daio*, to make hot; in allusion to its supposed effect in medicine. Nat. Ord. *Umbelliferæ*.

For description of this genus, see *Carrot*.

Dava'llia. Hare's-foot Fern. Named after *Edmund Davall*, a Swiss botanist. Nat. Ord. *Polypodiceæ*.

A fine and extensive genus of tropical Ferns. They have scaly, creeping rhizomes, which are covered with close brown hair, which feature has given rise to the name of Hare's-foot Fern. The genus is well marked by natural features, and is one of the most elegant to be found in our green-houses. Propagated by division of roots and by spores. Introduced in 1699. *Acrophorus*, *Humata*, *Leucostegia*, *Microlepia*, *Stenoloma*, etc., are included in this genus by some botanists.

Davidso'nia. Queensland Plum. Named after the discoverer of the plant, who found it in a sugar plantation. Nat. Ord. *Saxifragaceæ*.

D. pruriens (Syn. *pungens*), the only introduced species, is a noble looking and desirable ornamental plant, with leaves nearly two feet long. In the young state the leaves are of a bright red color, from which they pass to a deep green. It produces a succulent edible fruit and is one of the most interesting plants in Queensland. It was introduced from Australia in 1877.

Davie'sia. Named after *Rev. Hugh Davies*, a Welsh botanist. Nat. Ord. *Leguminosæ*.

Handsome green-house evergreens from New Holland. Like all other plants from that country, they require a bountiful supply of air on all favorable occasions through the winter, and in summer they are much better placed in the open air, so that they are slightly shaded from the mid-day sun. Some of the species have a sub-scandent habit, which, with their densely-filled, drooping spikes of yellow and red flowers, gives them a very graceful appearance. Propagated by cuttings from well-ripened side shoots. Introduced in 1792.

Dawn Flower. Blue. A popular name for *Ipomœa Learii*.

Day Flower. See *Commelyna*.

Day Lily. See *Funkia* and *Hemerocallis*.

Deadly Nightshade. A common name for *Atropa Belladonna*.

Dead Nettle. A common name for the genus *Lamium*, a few species of which have become naturalized in this country to such an extent as to be troublesome. Natives of Europe.

Dead-wort. *Sambucus Ebulus*.

Dealbate. Covered with a very opaque white powder.

Decai'snea. Named in honor of *Joseph Decaisne*, a distinguished French botanist, 1807-1882. Nat. Ord. *Berberidaceæ*.

One of the most remarkable of Indian discoveries. With the habit of an Araliaceous plant it exhibits the characters of the Berberidaceæ and Lardizabalaceæ. *D. insignis*, the only species, is an elegant tree with greenish flowers borne in terminal racemes It is a native of the humid forests of Sikkim and Bhotan, whence it was introduced in 1883.

Deciduous. Falling off. Leaves which are shed annually are said to be deciduous; as are also trees that annually lose their leaves. So also the calyx and corolla of *Cruciferæ*.

Deciduous Cypress. *Taxodium distichum*.

Declinate. Bent downwards.

Decompound, Decomposite. Having various divisions or ramifications; a leaf is said to be decompound when it is twice pinnated; a panicle, when its branches are also panicled.

Decuma'ria. From *decuma*, a tent; referring to the ten valvate divisions of the calyx, and the ten cells of the capsule or seed-pod. Nat. Ord. *Saxifragaceæ*.

A climbing shrub of the Southern States. Allied to *Philadelphus*. The flowers are white, sweet-scented, and arranged in corymbs. They are well adapted for growing against walls, thriving in almost any soil or situation. Propagated by cuttings or from seed.

Decumbent. Reclining upon the earth and rising again from it; applied to stems when they recline upon the surface of the earth, but have a tendency to rise again at the extremities.

Decurrent. Where the limb of a leaf is prolonged down the stem on each side, below the point of insertion, or where the midrib quits it; as though the leaf were partially united to the stem by its midrib. Common in the Thistles.

Decussate. Arranged in pairs that alternately cross each other; when two right lines cross each other at right angles they are said to be decussate; leaves are often placed in this position, as in *Ixora parviflora*, *Phlox decussata*, etc.

Deerberry. One of the popular names of *Vaccinium stamineum*.

Deer-Grass. See *Rhexia*.

Deflexed. Bending gradually downwards through the whole length.

Deformation. An alteration in the usual form of an organ, by accident or otherwise.

Degeneration. Some peculiarity in the condition of an organ, induced by modification of the circumstances under which its more usual and healthy development is effected.

Deherai'nia. Named after *Pierre-Paul Deherain*, assistant naturalist of the Museum of the Jardin des Plantes, Paris. Nat. Ord. *Myrsinaceæ*.

D. smaragdina, the only species, is an interesting warm green-house plant, remarkable for its large green Primrose-like flowers disposed in clusters below the leaves. It was introduced from Mexico in 1876. Syn. *Theophrasta smaragdina*.

Dehiscent. Opening, gaping; an expression applied to the mode in which the anthers or the capsule burst open and discharge their contents.

Delphi'nium. Larkspur. From *delphin*, a dolphin; in reference to the supposed resemblance in the nectary of the plant to the imaginary figures of the dolphin. Nat. Ord. *Ranunculaceæ*.

Well-known annual, biennial, and perennial plants, with curiously-cut leaves and splendid flowers, which are either scarlet, purple, pink, blue, or white, and never yellow. The Siberian Larkspurs are remarkable for the metallic luster of their flowers, the hue of which resembles that of silver which has been tarnished by fire; and the Bee Larkspurs are remarkable and interesting for the curious manner in which the petals are folded up in the center of the flower, so as to resemble a bee, or a large blue-bottle fly. The Larkspurs will grow in any soil or situation, but one open to the sun suits them best. They are improved by the addition of a good deal of thoroughly-rotted manure to the soil in which they grow. The seeds keep good a long time, and those of the annual kinds do best sown in autumn, as when sown in spring they are a long time before they flower. The perennials are propagated by division of the root, or by seed, which is sown in March in the greenhouse or hot-bed, and the plants pricked out as soon as they show their second pair of leaves, are carefully grown on until the first of June, and then turned out into the flower-garden; they will flower finely during the autumn months. See "Herbaceous plants."

Deltoid. Of a triangular shape, like the Greek capital △.

Dendro'bium. From *dendron*, a tree, and *bios*, life; referring to the way these air-plants fasten on trees for support. Nat. Ord. *Orchidaceæ*.

In this extensive genus we are presented with some truly magnificent epiphytes, which regarded either for their singular manner of growing, graceful or grotesque habits, and large, handsome, and richly-scented flowers, are perhaps unsurpassed in the entire range of vegetable forms. In a cultural sense they may be divided into two sections, the pseudo-bulbous class, and those with tall bulbous stems. Many of the former are extremely small compared with the splendid flowers they produce, and from this circumstance, are usually grown on blocks of wood or cork, lest the young shoots should receive injury from excessive moisture. Those belonging to the other section are again divisible. The upright growing species, such as *D. nobile*, made the best appearance when cultivated in pots, and trained into suitable forms by the aid of stakes; those of pendent trailing habits should be grown in baskets suspended from the roof of the house; in either case the soil should be composed of about equal parts of fibrous peat and sphagnum, with a liberal addition of pieces of charcoal. The mixture should be thoroughly incorporated without breaking it fine, and an efficient drainage must be secured, or the plants will not thrive. The base of their stems should be elevated two, three or four inches, according to the size of the plant, above the top of the pot or basket, as they are liable to much injury from damp when making their new shoots. The temperature of the house in which these plants are grown is a consideration of the first consequence to their successful culture; it requires to be assimilated, as nearly as circumstances will allow, to that of their native positions, and may be described as of three distinct phases, a dry and warm season, in which the plants produce their flowers, to be succeeded by one still warmer, and in which an abundance of moisture must be present, as it is at this time that new growths are effected, and this active season must be followed by one suited to produce a state of repose in the plants, by reducing the amount of heat considerably, and restricting the supply of moisture to the least possible quantity. This season is that which corresponds with our winters, and for convenience should be re-

ferred to that time. Thus, from December to about the end of March, or later for some species, may be regarded as the period first mentioned, the growing season commencing with each individual as soon as its flowering is over, and continuing until the growth is complete, which is usually about the end of August or some part of September, when they require the perfect rest already spoken of. It is in the variation of these seasons, the withholding or appliance of heat, that the whole art of the management lies. If it is done correctly, and at the proper time, of course the plant progresses satisfactorily, but otherwise all is confusion; the plant continues growing, but does not flower, becoming weaker each season. An average of 55°, with but slight alteration, should be observed for the dormant season; increasing it gradually to 65° or 70° for the flowering period, and after this is past, the temperature may be allowed to run up to 85°, 90°, or even more through the summer, keeping a proportionate amount of moisture in the atmosphere of the house by means of frequent steaming, syringing, etc. The genus consists of over 200 species, of which upward of eighty have been introduced into the green-house, and some of the species are grown to an extent that warrants their use as a cut-flower. Their appearance in the florists' windows is by no means rare, the more common being *D. nobile*, which flowers freely in the green-house during the winter, and is one of the very few Orchids that will grow and flower very well in the ordinary sitting-room. They are natives of India, Australia, and the Pacific Islands. See *Orchids*.

Dendrochi'lum. From *dendron*, a tree, and *cheilos*, a lip. Nat. Ord. *Orchidaceæ*.

A small genus of East Indian Orchids, chiefly of little interest. One or two of the species are highly esteemed by those who make a specialty of Orchids. *D. glumaceum* is a very handsome species, of neat habit, producing graceful drooping spikes of ivory-white flowers; the leaves, resembling those of the Lily of the Valley, gives the plant an interesting appearance when out of flower. *D. filiforme* is another graceful little plant, with yellow flowers. This genus requires to be grown in heat, and the plants, when at rest, should have an occasional watering, as the pseudo-bulbs are quite small, and, if allowed to shrivel, the plants would be lost. They are increased by division. Introduced in 1836.

Dendrome'con. Tree Poppy. From *dendron*, a tree, and *mekon*, a poppy; resembling that flower, with a woody stem. Nat. Ord. *Papaveraceæ*.

D. rigidum, the only species, is a hardy small shrubby plant, with yellow flowers, a native of California. The common name is very appropriate, the plant having the appearance and character of the Poppy tribe, with a woody stem and branches. Increased by seeds.

Dendro'panax. From *dendron*, a tree, and *Panax*, Tree Panax. Nat. Ord. *Araliaceæ*.

Very handsome and effective warm green-house plants. There are about twenty species, natives of tropical Asia and America, as well as China and Japan. *D. argentea*, has oblong, entire leaves about a foot in length, silvery white on the upper surface—purplish beneath. It is the only species in general cultivation.

Dennstæ'dia. Derivation of name not given. Nat. Ord. *Polypodiaceæ*.

A genus of Ferns, now merged in *Dicksonia*, The name is also a synonym of *Sitolobium*.

Denta'ria. Toothwort. Pepper-root. From *dens*, a tooth; referring to the fanged roots. Nat. Ord. *Cruciferæ*.

A genus of hardy herbaceous perennials, several of the species being common in most of the States. The roots of *D. diphylla* have a pungent, mustard-like taste, and are considerably used as a salad, under the name of Pepper-root. The plant is somewhat ornamental, of a dwarf habit, producing short racemes of white or purplish flowers. They are increased readily by division.

Dentate. Having sharp teeth with concave edges. When these teeth are themselves toothed, the part is *duplicato-dentate;* not *bidentate*, which means two-toothed.

Depa'ria. From *depas*, a cup, referring to the form of the involucre. A small genus of rare stove ferns, with generally bipinnate fronds. Some of the species may be propagated from the small bulblets they form on their fronds.

Depauperate. When some part is less perfectly developed than is usual in plants of the same family.

Depressed. Pressed downward; having the appearance of being flattened vertically, as the tuber of the Turnip.

Descending. Tending gradually downward, as some branches and leaves. Also, penetrating more or less vertically into the earth, as with the root, the descending axis of vegetation.

Desfontai'nea. In honor of *M. Desfontaines*, a French botanist. Nat. Ord. *Loganiaceæ*.

The few species that compose this genus are very handsome green-house evergreen shrubs, found in Peru. They have thick leaves with spiny margins, like those of the Holly. This is one of the plants that perplexes the botanist, as there is nothing in its external appearance that would lead to a knowledge of its affinities. It has been placed under three different classifications previous to the present one. *D. spinosa*, the only described species, has large flowers borne on terminal peduncles, scarlet, with a yellow limb. The elegance of its foliage and the brilliancy of its flowers make it a very desirable green-house plant. It requires about the same treatment as the Fuchsia. Introduced in 1850.

Designs. According to Loudon, the art of taking plans or designs of objects, should be considered to be part of a gardener's general education, since none who aspire to any degree of eminence in their profession ought to be ignorant of the first principles of geometry and drawing. It is just as necessary in laying out a flower-garden, or planting an intricate carpet-bed, to have the dimensions carefully measured and a design drawn to a scale, as it is to have a working plan in building a house. This not only enables the operator to arrange previously the positions and space to be occupied by the various plants, but if a colored design is made, enables him also to see that the proportions of color are

properly inserted. A glance at the design, when planting, will at once indicate the positions assigned to all the plants, and also prevent much confusion and annoyance. Intricate carpet-bedding designs are often worked out by marking the lines with white sand; others may be drawn out carefully on the surface and planted at once. Designs for glass structures vary according to their position or to the requirements of the plants for which they are intended, but each should show in the same proportion all the details necessary for a good working plan.

Desma'nthus. From *desme*, a bundle, and *anthos*, a flower. The flowers are collected into bundles or spikes. Nat. Ord. *Leguminosæ*.

A genus of tropical and sub-tropical Indian and American herbs, of which there are about eight species, some of which have been successfully cultivated. The little brown polished seeds of *D. Virgatus* are in Jamaica strung like beads, and used for making bracelets, etc.

Desmo'dium. Moving Plant, Tick-Trefoil. From *desmos*, a band; alluding to the stamens being joined. Nat. Ord. *Leguminosæ*.

An extensive genus of hardy herbaceous perennials and green-house evergreen shrubs. Most of the species are uninteresting plants, but a few are very beautiful and remarkably interesting. There are numerous species throughout the United States, with purple flowers produced in slender racemes. Some are herbs, others shrubs, but none of the native species are worthy of cultivation. The most interesting of the species, if not the most beautiful, is *D. gyrans*, the Moving Plant, a native of India, but rarely seen under cultivation. The singular, spontaneous rotary motion of the leaflets of this plant renders it an object of great interest. The leaves are composed of three leaflets, the terminal one being very large, and the laterals very small, but these are almost constantly in motion. They execute little jerks somewhat analogous to the movements of the seconds of a watch. One of the leaflets arises and the other descends at the same time, and with a corresponding force. When the first begins to descend the other begins to rise. The large leaflet moves also, inclining itself first to the right, then to the left, but by a continuous and very slow movement when compared to that of the lateral leaflets. This singular mechanism endures throughout the life of the plant. It exercises itself day and night, through drought and humidity. The warmer and more humid the day, the more lively are its movements. It is not unusual for the leaflet to make sixty jerks in the minute; they will not do this, however, under artificial cultivation, except when the plant is subjected to great heat. These movements occur spontaneously and without any apparent cause. The same external cause that has such a wonderful effect on the Catch-fly and the Sensitive Plant, does not affect this in the least. None of our native species has this strong peculiarity. The plant introduced to the United States from Japan as *Desmodium penduliflorum*, is now placed under the allied genus Lespedeza, as *L. bicolor*, which see.

Deu'tzia. Named after *J. Deutz*, a sheriff of Amsterdam. Nat. Ord. *Saxifragaceæ*.

A genus of slender branched, graceful shrubs, producing compound panicles of beautiful white flowers. *D. crenata*, Syn. *D. Scabra*, one of the more common species, takes its specific name from the roughness of its leaves, which in its native country, Japan, are used by the cabinet makers in polishing the finer kinds of wood. This with its double variety, are exceedingly showy when in blossom, and are two of the most desirable shrubs in cultivation. *D. gracilis* in addition to its beauty and usefulness as a hardy shrub, is one of the most valuable plants for forcing in winter and spring, and is very largely used for that purpose for the cut flower trade. All the species are perfectly hardy, and are readily propagated by cuttings, divisions, or layers.

Development. That gradual extension of parts by which any organ or plant proceeds from its nascent state to maturity.

Devil in a Bush. See *Nigella*.

Devil's Apples. *Mandragora officinalis*.

Devil's Bit. A common name for *Chamælirium luteum*, also for *Scabiosa succisa*.

Devil's Fig. *Argemone Mexicana*.

Devil's Leaf. *Urtica urentissima*.

Devil's Milk. *Euphorbia Helioscopia*, and other species.

Dew-berry. See *Rubus*.

Deyeu'xia. Named in honor of *Nicholas Deyeux*, a French chemist. Nat. Ord. *Gramineæ*.

A large genus of grasses widely dispersed over the temperate and mountainous regions of the globe. *D. elegans variegata* introduced from New South Wales in 1884, is a very elegant green-house plant, with a thick rootstock from which spring numerous leaves, about a quarter of an inch in breadth and a foot or more long, of a deep bright green color, broadly edged with creamy-yellow. Syn. *Lachnagrostis*.

Dhoura, Doura, or Durra. Guinea Corn. See *Sorghum*.

Diane'lla. A diminutive of *Diana*, the sylvan goddess; the first discovered species being found in a grove. Nat. Ord. *Liliaceæ*.

Lovely tuberous-rooted plants, chiefly from New Holland. They should be grown in pots of loam and peat, and if allowed a good situation in the green-house, will produce their showy blue flowers in abundance. Propagated by division or from seed.

Dianthe'ra. From *dis*, two, and *anthera*, anther; in reference to the cells being more or less separated from one another. Nat. Ord. *Acanthaceæ*.

A genus of green-house or hardy, erect, or dwarf herbs, with long solitary or fascicled bracteate flowers and entire leaves. *D. Americana*, the Water-willow of the United States, is a perennial herb growing in the bays and slow-flowing waters of the great rivers, as well as in streams and ponds. It has long narrow leaves and dense spikes of pale purple flowers upon long peduncles. *D. ciliata* is a pretty violet-colored, warm green-house shrub from Venezuela. The genus is closely allied to *Justicia*.

DENDROBIUM NOBILE.

DELPHINIUM (CHINESE).

DELPHINIUM (ANNUAL).

DICTAMNUS FRAXINELLA.

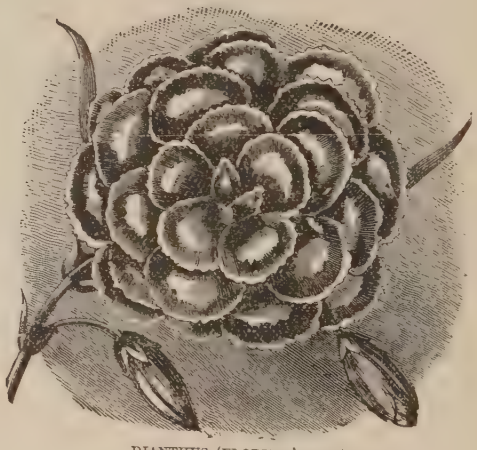
DELPHINIUM FORMOSUM.

DIANTHUS GARDNERIANUS.

DIANTHUS (SWEET WILLIAM).

DIANTHUS SCOTICUS.

DIANTHUS PLUMARIUS FL. PL.



DIANTHUS (FLORISTS' PINK).

DICKSONIA ANTARCTICA.

DIANTHUS (TYPE OF DOUBLE ANNUAL).

DIA

Dia'nthus. From *dios*, divine, and *anthos*, a flower; in reference to the fragrance and the unrivaled neatness of the flowers. Nat. Ord. *Caryophyllaceæ.*

Most of the species of this genus are highly valued for the beauty and fragrance of the flowers, which present a richer variety of tints of scarlet, crimson, rose, orange, etc., than is to be found, perhaps, in any other genus. The fragrance of some of them is peculiarly grateful, and no plant in this respect surpasses the Carnation, *D. caryophyllus* (Clove Pink and Carnation). Seedlings stand the winter and spring without difficulty with a light covering of leaves and evergreen boughs, and flower very well. Very many will not be considered worth saving by the florist, although they will all be interesting as single, semi-double, or irregular flowers, and richly repay all the labor. Carnations are arranged by florists into three classes, viz.: Flakes, Bizarres and Picotees. Flakes have two colors only; their stripes are large, going quite through the petals. Bizarres are variegated in irregular spots and stripes, with not less than three colors. Picotees have a white ground, spotted at the edges with scarlet, red, purple or other colors. The Clove Pink is rather more hardy than the Carnation, of which it is the parent; the petals are more fringed and the fragrance more powerful, resembling that of the clove. In France it is called the Clove Gilly-flower. Some suppose this latter name to have been corrupted from July-flower, July being its flowering time. The great improvement in the Perpetual Carnation (Tree or Monthly Carnation) has added an invaluable feature to this section of winter-blooming plants for the sitting-room, conservatory or greenhouse. The delicately rich and grateful odor, in connection with the brilliant color and good outline of the flowers now cultivated, secures for them a prominent place in the forcing department for cut flowers. *D. plumarius*, the Garden Pink, Florist's Pink, or Paisley Pink, is in perfection about the last of June. The foliage is more grass-like and the plant much hardier than the Carnation. The double varieties are very desirable, and all have a clove fragrance. *D. Chinensis*, the China Pink, is a biennial of dwarf habit and great beauty, but without fragrance. It flowers from seed the first year, and being perfectly hardy, flowers much stronger the second year. The colors are exceedingly varied and rich; crimson, and dark shades of that color approaching to black, are often combined in the same flower, with edgings of white, pink or other colors. In beds where there may be a hundred plants, scarcely two will be found alike. Seed saved from double flowers will produce a great proportion of double flowers. *D. C. Heddewigii* and *D. C. laciniatus* and their numerous varieties represent an exceedingly useful class of plants for mixed borders, many of their flowers being double and beautifully marked and fringed. *D. barbatus*, the Sweet William, is an old inhabitant of the flower-garden, and was much esteemed in Gerarde's time "for its beauty to deck up the bosoms of the beautiful, and garlands, and crowns for pleasure." It sports into endless varieties of color, white, pink, purple, crimson and scarlet self colors, and many sorts variously edged, eyed or spotted.

DIC

There are also many beautiful double-flowered varieties, notably the double dark crimson or blood-colored, which, of course, can only be perpetuated by division or by cuttings.

Diape'nsia. Named by Linnæus from *diapente*, composed of five; alluding to the flowers being five-cleft. Nat. Ord. *Diapensiaceæ.*

This genus consists of two beautiful little Alpine plants, both evergreen, which grow in dense tufts, scarcely rising more than an inch above the ground. The flowers are white, bell-shaped, and about half an inch across. It was first discovered in Lapland, but has since been found in the White Mountains, in New Hampshire, and in the Adirondacks, in New York. In its native country it is continually covered with snow in winter, which is the best protection against severe dry frosts. It can be grown in small pots, and protected by a frame in winter. Propagated by seeds or division.

Diapensia'ceæ. A small order of perennial, prostrate, sometimes suffruticose, shrubs, inhabiting the northern parts of Europe and North America. The order includes the genera *Diapensia, Pyxidanthera, Galax, Shortia,* as well as some others not yet in cultivation.

Dibber. This is the pointed implement used for setting out vegetable plants that have long roots, such as Cabbage, Celery, etc., and also seedling trees and flowering plants. It is best made in the form of a pistol handle, about ten inches long, one and a half inches in diameter, and shod with three or four inches of iron tapering to a sharp point.

Dice'ntra. From *dis*, twice, and *kentron*, a spur; in allusion to the double-spurred flowers. Nat. Ord. *Fumariaceæ.*

Very ornamental, hardy herbaceous perennials, with generally tuberous roots. They are natives of the northern hemisphere, and have mostly pink or yellow flowers, in terminal racemes. They form excellent subjects for the herbaceous border or rock-garden. *Diclytra* or *Dielytra spectabilis* is placed by many under this genus. See *Dielytra.*

Dichlamy'deous. Having both calyx and corolla.

Dichopo'gon. From *dicha*, double, and *pogon*, a beard; in allusion to the two appendages of the anthers. Nat. Ord. *Liliaceæ.*

A small genus of green-house perennial herbs, natives of Australia and Tasmania. *D. strictus*, the only species yet in cultivation, is a very interesting plant, with pale, sometimes dark-blue flowers, blooming in November. It was introduced in 1883, and may be increased by division of the rhizome, or by the tubers on the root-fibres.

Dicho'riza'ndra. From *dis*, twice, *chorizo*, to part, and *aner*, an anther; referring to the anthers being two-cleft. Nat. Ord. *Commelinaceæ.*

A genus of hot-house, herbaceous perennials from Brazil, some of the species being exceedingly ornamental and invaluable for late autumn or winter flowering. *D. thyrsiflora* ranks highest, and when well grown will reach ten feet in height, branched all round, each branch terminating with a long spike of sky-blue flowers. When the flowers begin to expand it may be removed to a warm conservatory, where it will last in bloom for

several weeks. *D. musaica* is a beautiful ornamental-foliaged species, with dark-green leaves, profusely penciled and veined, with zig-zag lines of pure white; under side reddish-purple. Propagated by division in spring, when the new growth commences, and by seeds.

Dicho'tomous. Having the divisions always in pairs; a term equally applied to branches, veins, or forks.

Dickso'nia. Named after *James Dickson*, a famous British cryptogamic botanist. Nat. Ord. *Polypodiaceæ*.

A genus of very ornamental Ferns, mostly arborescent, and including some of the most valued Tree Ferns to be found in our greenhouses. *D. antartica*, a native of Australia, introduced in 1824, is the one most commonly grown, and is the most ornamental of the genus. *D. arborescens*, a native of St. Helena, grows about twelve feet high, bearing at its summit a number of pinnated fronds, from ten to twelve feet in length. This species grows in great abundance in St. Helena, and next to the tomb of Napoleon, is the great attraction of the island. It is remarkable that this species has not been found in any other part of the world. All the Tree Ferns should be grown in a mixture of loam and leaf mould, and require a humid atmosphere. Young plants may be raised from spores, but it takes many years for them to grow to the size of imported stems, to which method we are indebted for all our large plants. One species, *D. punctilobula*, a hardy herbaceous plant, is a native of this country, very common in moist, rather shady places. It is one of our handsomest Ferns, and has an agreeable odor.

Dicli'ptera. From *diklos*, double-doored, and *pteron*, a wing; referring to the two-winged capsule or seed vessel. Nat. Ord. *Acanthaceæ*.

An extensive genus of annuals and perennials, allied to *Justicia*. The species are dispersed over the tropical and sub-tropical regions of the New and Old World. The annuals grow readily from seed, which should be started in a hot-bed, or the green-house, in March, grown on until all danger from frost is past, and then transplanted in the open border. The perennials are increased by cuttings. They all require a very light, rich fibrous soil.

Dicotyle'dons. Plants having two seed leaves, which are called cotyledons. This is one of the primary divisions or classes of the vegetable kingdom, including about 7,000 known genera, and about 70,000 known species of flowering plants. The class also receives the name of *Exogens*, from the structure of the stems. The plants of this great class have spiral vessels; their stems are formed by additions externally in the form of zones or rings; stomata or pores exist in the leaves, which have a reticulated or netted venation. The plants have stamens and pistils, either in the same or in different flowers. The symmetry of the flowers is represented by five or two, or multiples of these numbers. The ovules are contained in an ovary, or more rarely are naked; and the embryo has two, sometimes more, cotyledons.

Dicta'mnus. Fraxinella, Gas Plant. An ancient name, supposed to have been given because

the leaves resemble those of the ash; hence the English name, Fraxinella. Nat. Ord. *Rutaceæ*.

A small genus of hardy herbaceous perennials, and among the oldest inhabitants of the cottage garden. Johnson says: "Instances are known where *D. Fraxinella* has outlived father, son, and grandson in the same spot without increase, all attempts at multiplying it, to give away a rooted slip to a newly-married member of the family, having failed; yet the Fraxinella is easily increased from seeds, which should be sown soon as ripe in any common garden soil. They will come up the following spring." The plant has to be three years old before it will flower. It is a native of Germany. When rubbed the leaves emit a fine odor, like that of lemon peel; it is strongest in the pedicels of the flowers. The whole plant emits a resinous or oily matter, which may be readily ignited, especially in warm weather.

Dictya'nthus. From *diktyon*, net work, and *anthos*, a flower; the flowers are netted with veins. Nat. Ord. *Asclepiadaceæ*.

Green-house climbers of considerable beauty, from Central America and Brazil. They will do well, planted out in summer, but require green-house culture during winter. The same treatment that is given the Passiflora will suit them. The flowers are whitish-purple and greenish-brown, borne on axillary peduncles. *D. campanulatus* somewhat resembles the Stapelia. Propagated by cuttings. Introduced in 1851.

Dictyogra'mma. A genus of Ferns now placed under *Gymnogramma*.

Dictyo'pteris. From *diktyon*, a net, and *pteris*, a Fern; referring to the fronds. Nat. Ord. *Polypodiaceæ*.

A genus of Ferns from Australia, without special merit, and rarely met in collections: now placed under *Polypodium*.

Dictyospe'rma. From *diktyon*, a net, and *sperma*, a seed; in allusion to the raphe of the seed forming a loose net-work. Nat. Ord. *Palmaceæ*.

A genus of warm-house Palms, closely allied to *Areca*, from which genus it is botanically distinct.

Didi'scus. Derivation of name not given. Nat. Ord. *Umbelliferæ*.

The two species that compose this genus were formerly included in *Trachymene*. *D. cæruleus* is a showy plant, a native of Australia. It is covered with hairs; its leaves are three-parted, each division again subdivided; its flowers are blue. The fruit, when mature, is covered with small tubercles. *D. albiflorus* has no hairs, and its flowers are white.

Didymoca'rpus. From *didymos*, twin, and *karpos*, a fruit; in reference to the twin capsules. Nat. Ord. *Gesneraceæ*.

A genus of upwards of thirty species of caulescent or stemless herbs, or undershrubs, natives of tropical Asia. The flowers are violet-blue, rarely yellow, leaves usually cordate, wrinkled, and hairy. Those in cultivation are neat, pretty plants; propagated by cuttings of the young wood.

DID

Didymochlæ'na. From *didymos*, twin, and *chlaina*, a cloak; referring to the covering of the spore cases. Nat. Ord. *Polypodiaceæ*.

A small genus of very handsome green-house Ferns, natives of Africa and South America. They are allied to *Aspidium*, and are not often met with, except in choice collections.

Dieffenba'chia. Named after *Dr. Dieffenbach*, a German botanist. Nat. Ord. *Aroideæ*.

A genus of showy plants, all inhabitants of tropical America and the West Indies. They are grown for the beauty of their foliage, which is a very light green, thickly dotted with irregularly-shaped, pure white blotches, which give the plant a decidedly variegated appearance. A number of very choice and beautiful species have been introduced of late years from the United States of Colombia. They require a warm house, and should be kept near the glass to bring out their full colors. When at rest, if water is thrown over them, they are liable to damp off. The juice of these plants is decidedly poisonous; for this reason, and their awkward appearance when at rest, they have lost much of the favor that was bestowed upon them at their early introduction. *D. Seguine picta* (Syn. *Caladium seguinum*), is called the "dumb cane" by the natives, because it has the power, when chewed, of swelling the tongue and paralyzing the speech. It is said that Humboldt, when gathering the plant, unfortunately tasted it, and, in consequence, lost his speech for several days. They are propagated by division and by cuttings, and should be grown in a light, rich loam, freely mixed with sand and leaf mould.

Diely'tra. After years of learned discussion among botanists as to the derivation of this word, it is now accepted that it was erroneously changed from *Diclytra*, which, in the first instance, was accidentally printed for *Dicentra*. As, however, *D. spectabilis* is so well know as *Dielytra*, we describe it under that name. Nat. Ord. *Fumariaceæ*.

D. spectabilis, the "Bleeding Heart," a native of Siberia, was found by Mr. Fortune in the gardens in the north of China, and sent it, in 1846, to the London Horticultural Society. This species is too well known to need description. It is only proper, however, to say it is by far the handsomest of its tribe, and will grow in thick groves or in the most sunny situations. In the shade they do not flower so freely as in sunny places, but last longer, and more than compensate the loss of flowers by their luxuriant, graceful foliage. This species is well adapted for pot culture. It should be potted in November, left outside until it has formed new roots, and then brought into a gentle heat, and it will come into flower early in March. Taking it all in all, it is probably the finest hardy plant in cultivation. The plants are increased by division of roots, which should be done as soon as they start in spring.

Diervi'lla. Named after *M. Dierville*, a French surgeon. Nat. Ord. *Caprifoliaceæ*.

A small genus of low-growing shrubs, with yellow flowers, appearing in spring, by no means so showy as the allied Japanese genus *Weigelia*, which by some authors is placed under this genus. They are common from Canada southward.

DIL

Diffuse. Scattered, widely spread, as in *Veronica saxatilis*.

Digging. This is now nearly all done by the digging fork in place of the spade, unless in soils that are being broken up from sod. The fork pulverizes the soil much better (the only object to be attained by digging), is much lighter to handle, and the wonder is why, for generations the spade was used, when the manure fork, at the same time in use, had not suggested its value for digging purposes.

Digita'lis. Fox-glove. From the Latin *digitale*, the finger of a glove; referring to the shape of the flower. Nat. Ord. *Scrophulariaceæ*.

This genus consists of several species, biennials and perennials, all perfectly hardy and of the easiest culture. *D. purpurea*, the common Fox-glove, has long been cultivated as an ornamental border plant, and is the most useful of the class. There are some with white, rose and yellow flowers that are very beautiful, but not so free flowering. They prefer a rich, loamy soil, and partial shade, and are propagated by seeds or root division. Natives of central Europe, northern Africa and western Asia. A popular English name of the *Digitalis purpurea* is Witches' Fingers. The plant is used in medicine.

Digitate. Where several distinct leaflets radiate from the point of a leaf-stalk; applied to a simple leaf, where the lobes are very narrow, deeply cut, and all extending nearly to the base of the limb, like the extended fingers of the human hand, as in the Horse-Chestnut, Lupins, *Spiræa palmata*, etc.

Dill. *Anethum graveolens.* Dill is a hardy biennial plant, a native of Spain, and has been under cultivation in English gardens for nearly three hundred years. The plant grows upright, and resembles Fennel, only it is smaller. The flowers are borne in an umbel, and appear in July. The whole plant is strongly aromatic. The leaves are used in pickles, and to give flavor to soups and sauces. It was formerly included in domestic medicines. It is readily grown from seed in any good garden soil.

Dille'nia. A genus of very beautiful lofty evergreen trees, inhabiting dense forests in India, and the Malayan Peninsula and Islands, with very large and showy flowers, something like the Magnolia. *D. Speciosa* is one of the handsomest of Indian trees, whether the beautiful foliage is considered or the size and structure of the flowers. Unfortunately it is only suited to places where plenty of room can be afforded.

Dillenia'ceæ. This order consists of trees, shrubs, or under-shrubs, found chiefly in India, Australia, and America. There are about thirty known genera and over 200 species. Some are large timber trees while others are valued for their flowers and fruits. Illustrative genera are *Dillenia*, *Candollea*, *Delima*, etc.

Dillwy'nia. In honor of *L. W. Dillwyn*, a British patron of botany. Nat. Ord. *Leguminosæ*.

Handsome green-house plants, of neat habit of growth, free to flower, and of easy cultivation. An airy part of the green-house should be allotted to them in winter, and through the summer they will be benefited by being

placed out of doors. It is essential, in order to produce handsome plants, that the young shoots be frequently stopped while the plants are young, or they are liable to overgrow themselves. Propagated by cuttings of the firm side shoots in March or April. They are natives of New Holland, and were first introduced in 1794.

Dimidiate. Divided into two unequal parts.

Dimorpha'nthus. From *dimorphus*, two formed. Nat. Ord. *Araliaceæ*.

This genus is composed of herbs and shrubs, natives of China and Japan. Some of the species are very ornamental plants for the green-house or garden. *D. Mandschuricus* is a deciduous shrub, said to be perfectly hardy. Its handsome multifid leaves are nearly three feet long, and of the same width, which gives the plant a magnificent outline. The young shoots of *D. edulis* are a delicate article of food, much prized by the Chinese. They are increased by seeds and from cuttings.

Dimorphism. A state in which two forms of flower or leaf are produced by the same species.

Dimorphothe'ca. From *dimorphus*, two formed, and *theca*, a receptacle; disk florets of two forms. A genus of half-shrubby or herbaceous plants, principally natives of South Africa. They are all half-hardy plants, closely allied to *Calendula*. Suitable for border culture in summer, and for the cool green-house in winter. The perennial species are readily grown from cuttings.

Diœcious. When a plant bears female flowers on one individual, and male on another.

Dio'n. (Sometimes spelled Dioon.) From *dis*, two, and *oon*, an egg; referring to the two-lobed scales which compose the large cones of the cycad, bearing a large nut-like seed at the bottom of each scale; otherwise from seeds being borne in twos. Nat. Ord. *Cycadaceæ*.

D. edule, the only species, is a beautiful Palm-like plant. Its simple Zamia-like stem bears deep green pinnate leaves, whose leaflets are sword-shaped and sharp pointed. The cone consists of flat scales covered with wool, each scale bearing two large seeds of the size of Chestnuts, that yield a large quantity of starch, which is used as arrow-root. *D. edule* is extensively cultivated as an ornamental green-house plant, and is propagated by suckers and seeds, and more commonly from imported stems or trunks. It is a native of Mexico, and was introduced in 1844. Syn. *Platyzamia*. Miquel observes that this genus is more closely allied to certain fossil *Cycadaceæ*, than any other living representative of the order.

Dio'næa. Venus's Fly-trap. *Dione*, one of the names of Venus. Nat. Ord. *Droseraceæ*.

D. muscipula, the only species, is indigenous to the swamps of North Carolina and other Southern States. Aside from all the fables about this plant, it is one of extreme interest to cultivators, owing to the irritability displayed by the stipulary fringes on the winged leaves. The lamina of the leaf itself is divided by the midrib into two nearly semicircular halves, each of which is fringed with stiff hairs. This leaf exactly resembles a minature rat-trap. When the hairs are touched by a fly

or other insect, the sides of the leaf are brought together with a sudden spring, imprisoning the intruder. Mr. Charles Darwin and other writers claim that the *Dionæa* not only catches and kills the insect, but that its tissues absorb or feed upon them. Our experiments, carefully and extensively made during the summer of 1878, were such as to cause strong doubts of the correctness of this theory. The *Dionæa* is easily grown in sphagnum moss, kept very moist when the plants are in a growing state. They do rather best when grown in a Wardian case or under a bell glass and are always interesting from their singular insect catching peculiarity.

Dioon. See *Dion*.

Diosco'rea. Chinese Yam. After *Pedacius Dioscorides*, a Greek physician. Nat. Ord. *Dioscoreaceæ*.

A genus of tuberous-rooted plants that are extensively grown in Africa and the East and West Indies for food. The roots grow to a great size, are mealy, and considered to be easy of digestion. They are roasted and eaten instead of bread. The introduction of the *Dioscorea batatas* into this country as an article of food some years ago created quite a sensation; although we did not get a very valuable esculent, we got a beautiful hardy climber, with clean, glossy foliage and sweet-scented flowers, that are produced in spikes at the base of the leaves. This species was introduced from the West Indies in 1733 and has been of late years advertised and distributed under the name of "Cinnamon Vine." *D. villosa*, Wild Yam, is quite common in the thickets of New England and to the south and west.

Dioscorea'ceæ. A natural order of twining shrubs or herbs with tubers either above or below ground, usually alternate leaves with reticulated venation and small staminate and pistillate flowers growing in spikes. They are chiefly natives of tropical countries. *Tamus*, however, is a native of Europe and of the temperate parts of Asia. The plants are mostly acrid, but contain also a large amount of starch. Several species of *Dioscorea* produce edible tubers, which are known as Yams, and are eaten like Potatoes. *Tamus Communis*, black Bryony, has an acrid, purgative, and emetic tuber, and a berried fruit of a red color. *Testudinaria elephantipes* has a remarkable tuberculated stem, and is called Elephant's Foot or the Tortoise Plant of the Cape. The central part of it is eaten by the Hottentots. There are seven known genera and 160 species. *Dioscorea*, *Tamus*, and *Testudinaria* are examples of the order.

Dio'sma. From *dios*, divine, and *osme*, odor; referring to the powerful perfume which characterizes the species. Nat. Ord. *Rutaceæ*.

There is quite a large number of species, all from the Cape of Good Hope. *D. ericoides*, the species most generally cultivated, has small white flowers, borne on slender heath-like branches, with deep green leaves which emit a strong penetrating smell when bruised. It was introduced to cultivation in 1756, and is valued for its bright glossy color, and neat shrubby habit.

Diospy'ros. Date Plum, Persimmon. From *dios*, divine, and *pyros*, pear; literally celestial food. Nat. Ord. *Ebenaceæ*.

D. Virginiana is the Persimmon of our woods, common from New York southward. Ebony wood is obtained from several species of this genus. The best and most costly kind with the blackest and finest grain, is that imported from the Mauritius, which is yielded by *D. reticulata*. It is only the heart of the tree that yields the black ebony; the outer portion, or sapwood, being white and soft. The Japanese Persimmon is the best fruit in Japan. Their horticulturists have, by selection and cross-fertilization, developed this fruit until it occupies the same position with them that the Apple does with us. It is described as one of the finest fruits in the world, and ranges in weight from eight to twenty ounces. Prof. Asa Gray says: "He who has not tasted Kaki (the Japanese Persimmon) has no conception of the capabilities of the Diospyros genus." The trees are ornamental, especially when in fruit, prolific bearers, and free from worms and insects. It has proved about as hardy as our native species.

Dio'tis. Cotton-weed. From *dis*, two, and *ous*, an ear, alluding to the ear-like lobes of the corolla. Nat. Ord. *Compositæ*.

D. maritima (Syn. *D. candidissima*), a native of the shores of the Mediterranean and the Canary Islands, is an erect, branching, hardy perennial, clothed everywhere with dense white or grayish cottony-wool. It forms an excellent edging or rock-garden plant, and is readily increased by cuttings or seeds. This name has also been given to a Siberian chenopodiaceous shrub, which, however, is more properly united with *Eurotia*.

Dipetalous. Consisting of two petals.

Diphyllous. Two-leaved.

Dipla'cus. From *dis*, two, and *plakos*, a placenta; alluding to the splitting of the capsule, to each valve of which is attached a large placenta, and under its edges are found the slender subulate seeds. Nat. Ord. *Scrophulariaceæ*.

This genus, consisting of three or four species, is closely allied to *Mimulus*, the principal difference being in its shrubby habit and the seed capsule. *D. glutinosus*, a native of California, was long cultivated under the name of *Mimulus glutinosus*. It is an erect, branching plant, becoming more or less branching at the base. The flowers are rather large, solitary in the upper axils, and vary from a pale yellow to a rich orange or scarlet. All the varieties are desirable plants for the green-house or shady border. Propagated by cuttings.

Diplade'nia. From *diploos*, double, and *aden*, a gland; referring to the presence of two gland-like processes on the ovary. Nat. Ord. *Apocynaceæ*.

A genus of beautiful climbing green-house and hot-house shrubs from Central America and Brazil. The flowers are red, purple, rose, yellow, etc., and are produced in terminal clusters in great abundance, and some few kinds flower when quite small. They delight in a warm, moist atmosphere during their growing season, and require to have their main growths well ripened for the ensuing year. Propagation is effected by cuttings of the young shoots that are produced when the plants commence new growth in spring. Many beautiful hybrids have been produced

of late years, which are very desirable for the warm green-house or plant-stove.

Dipla'zium. From *diplazo*, to double; referring to the double covering of the spore cases or seed vessels. Nat. Ord. *Polypodiaceæ*.

An extensive genus of handsome evergreen Ferns, closely allied to Asplenium, and requiring the same general treatment. The species are pretty generally distributed from North America to Brazil.

Diplopa'ppus. A genus of *Compositæ* of but little beauty or interest.

Diplothe'mium. From *diploos*, double, and *thema*, a sheath. Nat. Ord. *Palmaceæ*.

A genus of very noble Palms, almost stemless, or developing a short ringed trunk. *D. caudescens*, a native of Brazil, has pinnate leaves four to eight feet in length, the closely set narrow pinnæ being from eighteen to twenty-four inches long, and about an inch broad. The upper surface is of a glossy green color, and beautiful silvery-white beneath. It is very graceful in habit, and is an excellent plant for lawn or sub-tropical decoration.

Dipsaca'ceæ. A natural order of herbs or undershrubs, mostly natives of the south of Europe, Barbary, the Levant, and the Cape of Good Hope. Some of the species are astringent. *Dipsacus Fullonum* is the Fuller's Teazel, the dried heads of which, with their hooked, spiny bracts, are used in fulling cloth. The opposite leaves of the wild Teazel, *D. sylvestris*, unite at their bases so as to form a basin, in which water collects; hence the plant was called *Dipsacus*, or thirsty. There are six known genera and about 170 species. *Dipsacus*, *Scabiosa*, *Morina*, and *Cephalaria* are examples of the order.

Dipsa'cus. Teazel. From *dipsao*, to thirst; referring to the cavity formed by the leaves clasping the stem holding water. Nat. Ord. *Dipsacaceæ*.

Hardy biennials, of but little beauty or use, except *D. Fullonum*, the Fuller's Teazel, which is a leading farm crop in the town of Skaneateles, N. Y., the conditions there being so favorable for its growth that it produces nearly all that is used in the United States. It is naturalized in some locations, having escaped from cultivation, and is quite common on the roadsides near Clifton, Staten Island. *D. sylvestris*, a rather scarce species is suspected to be the origin of the *D. Fullonum*, the principal difference being that the long flexible awns of the latter are hooked while those of *D. sylvestris* are straight. The flower heads, when dried, are used in the manufacture of woolen cloths, and are an article of considerable importance. Natives of Great Britain.

Dipteraca'nthus. This genus is now referred to *Ruellia*, which see.

Dipteroca'rpeæ. An order of resin-bearing trees, all the species of which are found in the tropics of the Old World. Flowers often sweet scented, disposed in axillary panicles. *Dryabalanops Camphora* or *aromatica*, a tree from 100 to 130 feet high, supplies the hard Camphor of Sumatra, which exists in a solid state in the interior of the stem, sometimes in pieces weighing from ten to twelve pounds. It also yields by incision a resinous,

oily fluid called the Liquid Camphor or Camphor Oil of Borneo. Sometimes five gallons of the fluid are found in a cavity in the trunk. Several others yield valuable resins. There are seven known genera and forty-seven species. *Dipterocarpus*, *Valeria*, *Dryobalanops*, and *Shorea* are examples of the order.

Dipterous. Having two wing-like processes, as the seeds of *Halesia diptera.*

Di'pterix. Tonquin Bean. From *dis*, double, and *pterix*, a wing; referring to the two upper segments of the calyx. Nat. Ord. *Leguminosæ.*

D. odorata, the only species, is an ornamental evergreen tree, a native of Cayenne. It produces the Tonquin or Tonga Bean of commerce, so much used by perfumers, and in the adulteration of the extract of Vanilla.

Di'rca. Leather-wood, Moose-wood. From *dirke*, a fountain; the plant growing in moist places. Nat. Ord. *Thymelaceæ.*

D. palustris, the only species, is a much-branched shrub growing about six feet high. The flowers are small and yellow, and produced in clusters. They are followed by small reddish, poisonous fruit. The fibrous bark of this shrub is remarkably tough, and was used by the Indians for thongs, whence the popular names. It is common in moist ground from Pennsylvania and Kentucky northward. In some of the New England States it is called Wicopy.

Di'sa. Meaning unknown, but supposed to be its native name. Nat. Ord. *Orchidaceæ.*

An extensive genus of terrestrial Orchids confined to South Africa and Abyssinia. There is a wide variation in the habit of the various species. *D. grandiflora* is perhaps the most beautiful of all terrestrial Orchids. It is spoken of as the pride of Table Mountain, where it grows in great profusion on the borders of streams and water pools, which are dry in summer, producing its gorgeous flowers in February and March. The flowers are large, the sepals of a deep scarlet crimson; petals tipped with white and green, pale yellow inside. The species have been considered the most difficult to manage of any in cultivation. Mr. Rand differs with most growers upon this point, having been quite successful in flowering them, with the following treatment: "The soil for this plant should be rich, fibrous peat and loam. It should have but little heat, and never be allowed to dry off. The great trouble in its culture appears to be want of water. If there is good drainage it can scarcely have too much. It does not need much heat, and should be grown with a good circulation of air, and not full sun." Propagated by division. Introduced in 1825.

Disca'ria. A genus of *Rhamnaceæ*, nearly allied to *Colletia*, but differing in having no petals. Natives of Australia and South America. *D. serratifolia*, with its bright green spiny branches and foliage, makes an excellent plant for pot culture.

Dischi'dia. From *dis*, twice, and *schizo*, to split; referring to an obscure process in the construction of the flower. Nat. Ord. *Asclepiadaceæ.*

Nearly related to Stephanotis and Hoya. A small genus of ornamental green-house evergreen trailers. The flowers are white, and

are borne in the axils of the leaves. A plant of but little merit.

Discoid. When, in *Compositæ*, the ray florets are suppressed, the head of the flowers is said to be discoid.

Discolor. Parts having one surface of one color, and the other surface of another color. Also, any green color altered by a mixture of purple, as in *Cissus discolor.*

Dise'mma. From *dis*, double, and *stemma*, a crown; referring to the double coronet or rays. Nat. Ord. *Passifloraceæ.*

This genus is closely allied to Passiflora, requires the same general treatment, and is propagated in the same manner. Some of the species are very beautiful, and worthy of cultivation. They are natives of New Holland; first introduced in 1792.

Dish-rag Plant. See *Luffa.*

Disk. An organ intervening between the stamens and ovary. The central tubular flowers of *Compositæ* are also called the Disk.

Disoca'ctus. From *dis*, twice, *isos*, equal, and *cactos;* the divisions of the petals and sepals equal and twice two, and the habit of a Cactus. Nat. Ord. *Cactaceæ.*

There is but one known species of this genus, which is a weak trailing shrub or bush, a connecting link between two sections of the order the *Epiphyllum* and *Rhipsalis.* The flowers are produced singly from one of the notches at the upper end of the young branches, and are characterized by having only four sepals and four petals. They are of a deep pink color, about two inches long, produced in succession, last a long time, and are succeeded by beautiful little shiny, deep crimson berries. The plant should be grown in soil composed of equal parts of sharp sand, leaf mould, and turfy loam. In a growing state it should have a moist atmosphere, but in winter it should be kept dry, with plenty of light; it may be increased by cuttings or seeds. It is a native of Honduras, and was introduced in 1839. By many botanists this genus is united with *Phillocactus*, from which it only differs in its fewer sepals and petals.

Dispe'ris. From *dis*, double, and *pera*, a pouch; in allusion to the form of the outer segments of the perianth. Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial Orchids from the Cape of Good Hope, bearing scarlet or purple flowers. It requires the same treatment in propagation and culture as *Disa.*

Dispermus. Two-seeded.

Dispo'rum. From *dis*, double, and *poros*, a pore; application not stated. Nat. Ord. *Liliaceæ.*

A genus of half-hardy herbaceous plants, allied to *Uvularia.* The flowers are small, but rather pretty, of brown or yellow colors. They succeed well in a warm border, if slightly protected in winter, and are propagated by division of the roots. Natives of China and Nepal; introduced in 1801.

Dissected. Cut into many deep lobes.

Dissemination. The manner in which ripe seeds of plants are naturally dispersed.

Distichous. When parts are arranged in two rows, the one opposite the other, as the florets of many grasses.

DIS

Distinct. When any part or organ is wholly unconnected with those near it.

Ditch Stone-Crop. The common name of *Penthorum sedoides.*

Dittany. See *Cunila.*

Diurnal. Enduring only a day, as the flowers of *Tigridia* and *Hemerocallis* (Day Lily).

Divaricate. Straggling; spreading abruptly; branching off at an acute angle, and spreading irregularly in various directions, as in *Veronica pinnata.*

Diversiflorus. When a plant or inflorescence bears flowers of two or more sorts.

Divided. Where incisions or indentations extend nearly to the base.

Dock. See *Rumex.*

Dodder. See *Cuscuta.*

Dodeca'theon. American Cowslip. From *dodeka*, twelve, and *theos*, a divinity; twelve gods or divinities of the Romans; a name absurdly applied to a plant, native of a world the Romans did not know, and resembling in no particular any plant of their writers. Nat. Ord. *Primulaceæ.*

This is a genus of native herbaceous perennials that deserve extensive cultivation. They are common in rich woods in Pennsylvania and westward to Wisconsin. In the west the common name is Shooting Star. They are exceedingly handsome in cultivation, thriving well in a shady border. The flower-stems are one foot or more high, bearing a considerable number of elegant drooping flowers of rosy purple, light purple, or white colors, and of an interesting shape, somewhat resembling the Cyclamen, to which plant it is allied. A very large and showy species, with deep purple and yellow flowers, has been introduced from California, named by Prof. E. L. Greene, of the State University, *D. Clevelandi.* They are propagated by seeds, or division of the roots.

Dog-Grass. *Triticum repens.*

Dog-Rose. *Rosa canina.*

Dog-Thistle. *Carduus arvensis.*

Dog-Violet. *Viola canina*, and *V. sylvatica.*

Dog-Wood. *Cornus sanguinea*; also applied to *Euonymus Europæus*, *Rhamnus frangula*, and *Viburnum Opulus.*

Dog's Bane. The genus *Apocynum.*
Climbing. *Periploca græca.*

Dog's Parsley. *Æthusa Cynapium.*

Dog's-tail Grass. *Cynosurus cristatus.*

Dog's-tooth Violet. *Erythronium dens-canis*, which see.

Dolabriform. Ax-shaped.

Do'lichos. From *dolichos*, long; referring to the long, twining shoots. Nat. Ord. *Leguminosæ.*

Climbing annual and perennial plants from the East and West Indies, generally with purple or white flowers. The pods and seeds are eatable, and, in some cases, also the roots. *D. Lablab*, the Egyptian Bean, is a beautiful species with two varieties, one with dark purple flowers, the other white. They grow in any situation, where an ornamental climber is required, and may be treated as hardy annuals. This species was introduced from Egypt in 1818.

DOR

Dondia. A synonym of *Hacquetia*, which see.

Doob, or Doorba. Indian names for *Cynodon Dactylon*, which see.

Doo'dia. Named after *Samuel Doody*, a London apothecary and cryptogamic botanist. Nat. Ord. *Polypodiaceæ.*

A genus of green-house evergreen Ferns, mostly natives of Australia and the Sandwich Islands. The species are small, stiff, and rough-leaved, of no great beauty, and are propagated by division when at rest.

Doom Palm. A name given to *Hyphæne thebaica.*

Doora, or Doura. See *Sorghum vulgare.*

Dore'ma. From *dorema*, a gift or benefit. Nat. Ord. *Umbelliferæ.*

A hardy herbaceous plant, growing on the plains in the province of Irak, Persia, which furnishes the drug known as Ammoniacum. The plant abounds in a milky juice, which exudes upon the slightest puncture being made, and dries upon the stem in little rounded lumps, or tears, as they are called. Propagated by seeds.

Doro'nicum. Leopard's Bane. Altered from *Doronogi*, its Arabic name. Nat. Ord. *Compositæ.*

A genus of showy herbaceous perennials, natives of Europe and temperate Asia, with large, bright yellow flowers, which are produced early in spring. They are of very easy culture being increased by division of the roots, and are showy plants for the herbaceous border. There are several species in cultivation of which *D. Altaicum*, *D. Pardalianches*, *D. Austriacum* and *D. Caucasicum* are the best known. Several seedling varieties have been lately introduced in England and are much admired. They are often forced for conservatory decoration or for cutting.

Dorsal. Attached to, or growing on the back of any organ.

Dorste'nia. Named for *Theodore Dorsten*, a German botanist. Nat. Ord. *Urticaceæ.*

Herbaceous plants of neat compact habit, natives of tropical America. Some of the species have elegantly cut leaves; while many of the others are decorated with silver markings. They are very curious plants, and are increased by division or by seeds.

Dorya'nthes. From *dory*, a spear, and *anthos*, a flower; the flower-stem shoots up from twelve to twenty feet high, like the handle of a spear, bearing flowers on the top. Nat. Ord. *Amaryllidaceæ.*

D. excelsa, introduced in 1800, is a magnificent Australian plant, and is what is termed an imperfect bulb. The flower stalk has been known to grow as high as thirty feet, crowned with a head of bright scarlet flowers, that emerge from crimson bracts. It does well in a green-house temperature. *D. Palmeri*, recently introduced from Queensland, is described as being a more beautiful plant than the preceding. The flowers form a pyramidal spike twelve to eighteen inches high, and ten to twelve inches broad, the flowers being red, with a center almost white. Propagated by suckers.

Doryo'pteris. From *dory*, a spear, and *pteris*, a fern; spear-leaved *Fern.* Nat. Ord. *Polypodiaceæ.*

DOT

A genus of tropical herbaceous Ferns, allied to *Pteris*. Some of the species are now included under the latter genus. They are common in South America and the East and West Indies. Propagated by spores.

Dotted. Furnished with transparent receptacles of oil, looking like dots; marked with punctures.

Double. When applied to the entire flower, it signifies that monstrous condition in which the parts of the inner floral whorls, the stamens or carpels, become converted into petals. Applied to the calyx or corolla separately, it refers to certain examples in which these organs appear to consist of more than the usual normal number of subordinate parts, and thus seem as if they were double. Double flowers are most common in the natural order *Compositæ*.

Dougla'sia. A very pretty genus of herbaceous plants from the Rocky Mountains, and Artic North America, of the Nat. Ord. *Primulaceæ*.

The plants are evergreen, and like many others from high latitudes, will not bear sudden changes; consequently they need protection in winter. The flowers are small, of a beautiful purple, borne in small tufts. This genus was named by Dr. Lindley in compliment to *David Douglas*, whose zeal in collecting seeds and plants, and whose untimely end have richly earned for him a niche in the long gallery of departed martyrs to science. Mr. Douglas was borne in Scone, Scotland, in 1798, and killed in the Sandwich Islands, July 12th, 1834. Having been employed in the Glasgow Botanic Garden, his intelligence attracted the notice of Sir William Hooker, who procured for him an appointment as botanical collector to the Horticultural Society of London. In this capacity he traveled extensively in America. In 1824 he explored the Columbia River and California, and in 1827 traversed the continent from Fort Vancouver to Hudson's Bay, where he met Sir John Franklin, and returned with him to England. He made a second visit to the Columbia in 1829, and afterwards went to the Sandwich Islands. His death was caused by falling into a pit made to entrap wild cattle, where he was killed and mutilated by an animal previously entrapped. Through his agency 217 new species of plants were introduced into England. He collected 800 specimens of the California Flora. A gigantic species of Pine which he discovered in California is named after him, *Abies* or *Pseudotsuga Douglasii*.

Doum Palm. See *Hyphæne*.

Dove Flower. See *Peristeria elata*.
Waxen. *Peristeria cerina*.

Down Thistle. *Ornopordon Acanthium*.

Down Tree. *Ochroma Lagopus*.

Downi'ngia. Named in honor of *A. J. Downing*, the father of horticulture in the United States. Nat. Ord. *Lobeliaceæ*.

A genus of hardy annuals from California and British Columbia, free flowering, and very pretty for the border. If the seeds be sown in February, and the plants treated the same as Verbenas, they will flower by the first of June and continue until killed by frost. The flowers are of lovely blue, not unlike the

DRA

Lobelias. Introduced by Mr. Douglas in 1827. These plants have erroneously been called *Clintonia*, which name properly belongs to a genus of *Liliaceæ*.

Dra'ba. Whitlow-Grass. From *drabe*, acrid; referring to one of the universal characters of its natural order. Nat. Ord. *Cruciferæ*.

A genus of hardy rock or alpine plants, consisting of annuals, biennials and herbaceous perennials. They are very low plants, admirably adapted for rock-work, as they are generally found in a wild state in the fissures and crevices of rocks and mountains. They have white or yellow flowers, and should be grown with good drainage and a sunny exposure. Propagated by root division, or by seeds. First introduced in 1731.

Dracæ'na. From *drakaina*, a female dragon; the thickened juice becomes a powder, like the dragon's-blood. Nat. Ord. *Liliaceæ*.

Dracænas rank among the most beautiful and useful of the ornamental-foliaged and fine-leaved plants. In a large or small state they are alike elegant and attractive. They are deservedly popular for the green-house or the sub-tropical garden, and for lawn decoration, large plants of many of the species have no equal. The species include the celebrated Dragon-tree (*D. Draco*) at Orotavia, in the island of Teneriffe, that was first noticed by Humboldt, who estimated its age at 6,000 years. This tree was seventy feet in height and seventy-nine feet in circumference at the base. The interior of the trunk, which had been hollow for centuries, was used as a Roman Catholic chapel after the conquest of the island by the Spaniards. Unfortunately it was totally destroyed by a hurricane which occurred in 1867. *D. terminalis* (or more correctly *Cordyline*), a native of both the East and West Indies, is the best known of the species, and is extensively grown for baskets, window gardens, or the conservatory, the vivid coloring of its leaves rendering it at all times attractive. From this species has originated the host of popular hot-house varieties, many of which are most desirable and interesting because of their varied and rich tints of color, and their gracefully recurved foliage. Nearly all the species are admirably adapted for decorative purposes. *D. Goldieana* is a magnificent stove-house species, introduced from tropical Africa in 1872. Its broad, deep green, spreading leaves are marbled and irregularly banded with silvery-gray in alternate straight or furcate bands, rendering it one of the most striking and ornamental of the genus. *D. umbraculifera*, introduced from the Mauritius in 1778, is a very peculiar and distinct species, with long, narrow, dark green leaves, very closely set, and horizontal, with the ends slightly recurved, giving it the appearance of a table top or umbrella. For the sub-tropical garden or for the lawn, *D. indivisa* and *D. Australis*, Syn. *Cordyline*, are the best, being of graceful habit, rapid growth, and not affected by sunshine, storm or drought. They are natives of New Zealand, and are readily increased from seed. The other species are propagated by placing the stems on the propagating bench in sand, with a bottom heat of 75°, and slightly covering them with sphagnum, which should be kept at all times moist; in a short time an eye will break forth from

DIGITALIS.

DOLICHOS.

DIOSCOREA (CHINESE YAM).

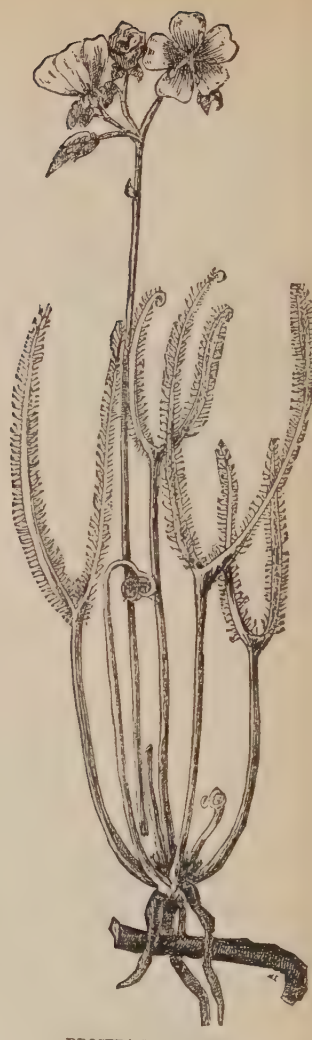
DODECATHEON CLEVELANDI (GIANT AMERICAN COWSLIP).

DIONÆA MUSCIPULA.

DIELYTRA SPECTABILIS.

DRACÆNA AMABILIS.

DOWNINGIA (CLINTONIA).



DROSERA DICHOTOMA.

DIEFFENBACHIA.

DRACÆNA GOLDEANA.

DIOSPYRUS (JAPANESE PERSIMMON).

nearly every joint. The most forward of these may be removed from the stem from time to time, which will soon strike root in sand with bottom heat. The old stem should not be removed until its reproductive powers are exhausted. The species are pretty generally distributed throughout all tropical and sub-tropical countries, and were first brought to notice about 1820. See *Cordyline*.

Dracoce'phalum. Dragon's Head. From *drakon*, a dragon, and *kephale*, a head; referring to the gaping flower. Nat. Ord. *Labiatæ*.

This genus consists of hardy annuals and perennials, several of which are well known as garden flowers, among which may be found *D. Moldavicum*, the Moldavian Balm, a hardy annual with blue flowers. Several hardy species, perennials, natives of Siberia, have beautiful large blue flowers. One very pretty species, *D. parviflorum*, is sparingly met in the Northern and Western States. All are propagated by seed or by root division. Introduced in 1731.

Draco'ntium. A genus of *Aroideæ*, natives of tropical America, comprising certain species more remarkable than beautiful or ornamental; useful only in large collections.

Dracophy'llum. A genus of *Epacridaceæ*, consisting of about twenty-five species, natives of New Zealand and Australia. *D. capitatum*, with pure white flowers in terminal heads, and *D. gracile*, also white, but more slender in growth, are both very pretty plants when well grown.

Dragon-Arum. *Arum Dracunculus.*

Green. *Arisæma Dracontium.*

Dragon's Blood. This resin, used in medicine, etc., is furnished by *Calamus Draco*, and is imported from Sumatra, southern Borneo, etc. The name Dragon's Blood is also given to resins yielded by *Dracæna Draco* in the Canary Islands, and by *Dracæna cinnabarina* in Socotra, and also by *Pterocarpus Draco*.

Dragon's-Blood-Tree. *Dracæna Draco.*

Dragon's-head. The genus *Dracocephalum.*

Dragon's-mouth. *Antirrhinum majus.*

Dragon-tree. Canary Islands. *Dracæna Draco.*

Draining. This is one of the most important operations in horticulture. No matter how fertile the normal condition of the soil; no matter how abundantly it is fertilized; no matter how carefully and thoroughly it is tilled, if water remains in it at the depth to which roots penetrate, all labor will be in vain; for no satisfactory result can ever be attained until the water is drained off. The subject is one of such importance that we cannot give it full attention here, and to such as require to operate on a large scale, works specially devoted to the subject should be consulted, or a draining engineer employed. Soils having a gravelly or sandy sub-soil ten or twenty inches below the top soil do not usually need draining; but in all soils underlaid by clay or hard pan, draining is indispensable, unless in cases where there is a slope of two to three feet in a hundred; and even in such cases draining is beneficial if the sub-soil is clay.

In soils having a clay or hard-pan sub-soil, drains should be made three feet deep and not more than twenty feet apart. If stones are plenty, they may be profitably used to fill up the drains, say to a depth of twelve or fifteen inches, either placed so as to form a "rubble" drain, if the stones are round, or built with an orifice at the bottom, if the stones are flat. In either case, care must be used to cover the stones carefully up with inverted sods, or some material that will prevent the soil being washed through the stones and choking up the drain.

Drain tiles, when they can be obtained at a reasonable price, are the best material for draining. The horseshoe pattern is generally used. If the drain has a hard bottom they can be placed directly on it when leveled to the proper grade; but if the ground is soft and spongy, a board must be laid in the bottom, on which to place the tiles. It is often a very troublesome matter to get the few drain tiles necessary to drain a small garden, and in such cases an excellent and cheap substitute can be had by using one of boards. Take ordinary rough boards—Pine, Hemlock or Spruce—and cut them into widths of three or four inches, and nail them together so as to form a triangular pipe, taking care to "break the joints" in putting the lengths together. Care must be taken that the boards are not nailed together too closely, else they might swell so as to prevent the water passing into the drain to be carried off. These drains are usually set with a flat side down, but they will keep clear better if put with a point down, though it is more trouble to lay them. Drains made in this way will last twenty years or more.

Of course, in draining, the greater the fall that can be got the better, though, if the grading is carefully done by a competent engineer, a very slight fall will suffice. Some of the trunk or main sewers in our cities have only a grade of one foot in a thousand.

Drainage in flower pots is essential for most plants whenever the pot is over five inches in diameter. Charcoal broken into pieces from one-half to one inch in diameter we prefer to every other kind of drainage, which should be in depth from one inch to three inches, according to the size of the pot to be drained, an extra quantity being necessary if the plant is being shifted into a pot too large; then ample drainage is indispensable to admit of the quick escape of water. This drainage, so called, is not alone of use as a means for the rapid escape of water, but also for the admission of air to the roots, which brings in another important matter in connection with the drainage in pots, the necessity to stand the pots on some rough material, such as gravel or cinders; for if placed on sand, soil, or anything that will close up the orifice in the bottom of the pot, all the drainage placed in it will avail nothing. It is far better to use no drainage at all, and stand the pots on a rough surface, than to use the drainage and place the plants on some material that will close the outlet.

Dri'mia. From *drimys*, acrid; referring to the juice of the bulbs. Nat. Ord. *Liliaceæ*.

A small genus of green-house bulbs from the Cape of Good Hope. The flowers are white, purple, red, green, and variegated, and resemble the Ixias, though not as showy. The juice of the bulb is very acrid, causing blisters when applied to the skin. Propagated by offsets. Introduced in 1800.

DRI

Dri'mys. Fine half hardy evergreen trees with aromatic bark and showy flowers, belonging to the Nat. Ord. *Magnoliaceæ.*

D. Winteri, the species most generally cultivated, has milk-white flowers one inch or more across, with a Jasmine-like perfume. Leaves oblong, obtuse and glaucous beneath. Propagated by cuttings. The fruit of *D. Aromatica* is sometimes used as pepper. Syns. *Winteria* and *Tasmannia.*

Drooping Sorghum. *Sorghum cernuum.*

Drop-seed Grass. The common name of the genus *Sporobolus*, applied because the seeds are loose, and easily scattered. The several species are common in dry barrens.

Dropwort. See *Spiræa filipendula.*

Dro'sera. Sun-dew. From *droseros*, dewy. Nat. Ord. *Droseraceæ.*

American, British, and Australian plants of insectivorous notoriety, with hairy leaves and curious flowers, which require to be grown in moss, mixed with leaf mould, kept moist, and during the heat of the day covered with a bell glass. The leaves are studded with reddish glandular inflexed hairs, discharging from their apices a drop of viscid, acrid fluid. The Italian liqueur called Rossoglia is said to take its name from one of the species being used in its composition. This is one of the plants experimented with by Mr. Darwin, from which he was led to believe that some plants feed on insects.

Drosera'ceæ. A natural order of perennial and annual herbs, which are often covered with glandular hairs. They have alternate leaves with fringes at their base, and a fern-like growth. The plants inhabit marshes in Europe, India, China, the Cape of Good Hope, Madagascar, North and South America, and New Holland. They have acid and slightly acrid properties. The species of *Drosera* are remarkable for their glandular hairs, which are covered with drops of fluid in sunshine. *Dionæa muscipula* is a still more remarkable plant, commonly called Venus's Fly-trap. Some include *Parnassia* in this order. There are seven known genera and about 100 species. *Drosera*, *Dionæa*, and *Drosophyllum*, are examples of the order.

Drosophy'llum. From *drosos*, dew, and *phyllon*, a leaf; in allusion to the leaves being beset with stipulary glands, appearing like dew. Nat. Ord. *Droseraceæ.*

D. Lusitanicum (the only species), forming a dwarf, shrubby plant three to five inches in height, is one of the most singular plants of European flora. The nature of the glandular hairs is different from that of the Droseras, their rigid pedicels not being endowed with the motive power of the British and other species of the genus just mentioned. "A still more anomalous character is to be found in the way the leaves are developed in the bud, being circinate and *revolute*, not involute, as in our Droseras, in Ferns, Cycads and other plants, and of this mode of development *Drosophyllum* is, so far as I know, the only example in the Vegetable Kingdom." (J. D. Hooker in *Botanical Magazine.*) It is a native of Spain, Portugal and Africa, introduced in 1869, and is propagated by seeds.

Drupa'ceæ. Formerly regarded as a distinct natural order, but now as a section of *Rosaceæ.*

DUP

Drupe. A kind of fruit consisting of a fleshy, succulent rind, and containing a hard stone in the center, like the Olives, Plums, Apricots, etc.

Drya'ndra. Named after *Jonas Dryander*, a distinguished Swedish botanist.

A genus of *Proteaceæ*, allied to *Banksia*, containing in all about fifty species. Handsome green-house plants, rarely seen in cultivation, notwithstanding their great beauty.

Dry'as. From *Dryades*, the goddesses of the woods, to whom the oak was sacred. The leaves of *D. octopetala*, a Scotch plant, on which the genus was founded by Linnæus, resembles small oak leaves; and he, in playful mood, made Dryas the badge of Virgil's Dryades, after the manner of the Scottish clans. Nat. Ord. *Rosaceæ.*

A delicate genus of dwarf, moderately-spreading plants, with neat evergreen leaves and strawberry-like flowers. All have white flowers except *D. Drummondii*, which are of a sulphur yellow. They are all of easy culture, but require a moist, shaded situation. They are natives of Great Britain and the United States, and are propagated by division and by seeds.

Drymo'nia. From *drymos*, an oak wood; their habitation. Nat. Ord. *Gesneraceæ.*

A small genus of South American shrubs of climbing habit, found in moist or marshy situations. Flowers large, not unlike the *Gesnera.* A few species have been introduced into the green-house, and are quite ornamental. They should be grown in baskets filled with turf and pieces of wood, in a moist, warm house, and are propagated by cuttings. Introduced in 1806.

Dryna'ria. From *drys*, a tree; dwelling among trees. Nat. Ord. *Polypodiaceæ.*

An extensive genus of green-house Ferns from India and the Pacific Islands, now included under *Polypodium* by some authors.

Dryoba'lanops. Camphor Tree. From *drys*, a tree, *balanos*, an acorn, and *ops*, appearance; in allusion to the species being a tree, bearing acorn-like fruits. Nat. Ord. *Dipterocarpeæ.*

A large, resinous, camphor-bearing evergreen tree, native of Sumatra. *D. aromatica* furnishes a liquid called Camphor-oil and a crystalline solid known as Sumatra camphor. It is highly prized by the Chinese.

Dry'pis. From *drypto*, to lacerate; leaves armed with spines. Nat. Ord. *Caryophyllaceæ.*

D. spinosa is a beautiful little trailing plant well adapted for growing upon rock-work; its pretty pale pink or white flowers being produced so as to completely cover the ground. It is increased by cuttings. This plant is a native of Italy, and was introduced in 1795.

Duck's-foot. See *Podophyllum.*

Duck-weed. The genus *Lemna.*
Tropical. *Pistia Stratioides.*

Ducts. Tubular vessels marked by transverse lines or dots; apparently, in some cases, modifications of spiral vessels.

Dumb Cane. *Dieffenbachia Seguine.*

Duplicate. Growing in pairs. When compounded with the words crenate, dentate, serrate, it implies that the incisions on the margins of leaves bearing these names are themselves crenated, dentated, and serrated.

DUR

Duramen. The heart-wood, or that part of the timber of a tree which becomes hardened by the matter deposited in it. It is next the center in Exogens and next the circumference in Endogens.

Dura'nta. Named in honor of *Castor Durantes*, a physician and botanist. Nat. Ord. *Verbenaceæ*.

A genus of free flowering evergreen shrubs, natives of South America and the West Indies. *D. Plumieri*, the best known species, has pretty blue flowers borne in racemes in great profusion. It was introduced in 1739, and is increased readily by cuttings.

Du'rio. From *Duryon*, the Malay name of the fruit, and comes from *dury*, a thorn; alluding to the prickly fruit. Nat. Ord. *Sterculiaceæ*.

D. zibethinus, the only species, a noble tree attaining the height of from sixty to eighty feet, with somewhat the general appearance of an elm, produces the celebrated Durian fruit of the Indian Archipelago. This fruit varies in shape, being either globular or oval, and measures as much as ten inches in length; it has a thick, hard rind entirely covered with very strong sharp prickles, and is divided into five cells, each of which contains from one to four seeds rather larger than pigeons' eggs, and completely enveloped in a firm luscious-looking cream-colored pulp, which is the eatable part of the fruit.

This tree is commonly cultivated throughout the Malayan Peninsula and Islands, where its fruit, during the period it is in season, forms the greatest part of the food of the natives. Considerable difference of opinion exists among epicures as to the relative merits of several well-known tropical fruits, including the Durian, the Mangosteen, the Cherimoyer, and the Pine-apple, any of which is made to occupy the foremost place, according to individual taste. The flavor of Durian, however, is said to be perfectly unique; and it is also quite certain that no other fruit, either of tropical or temperate climes, combines in itself such a delicious flavor with such an abominably offensive odor—an odor commonly compared either with putrid animal matter, or with rotten onions. It might be supposed that a fruit possessing such an odor could never become a favorite; but it is said that when once the repugnance has been overcome, the Durian is sure to find favor, and that foreigners invariably become extremely fond of it. One traveler observes that "a rich custard, highly flavored with almonds, gives the best general idea of it, but there are occasional wafts of flavor that call to mind cream-cheese, onion sauce, sherry wine, and other incongruous dishes. Then there is a rich glutinous smoothness in the pulp which nothing else possesses, but which adds to its delicacy. It is neither acid, nor sweet, nor juicy; yet it wants none of these qualities, for it is in itself perfect. It produces no nausea or other bad effect, and the more you eat of it the less you feel inclined to stop. In fact, to eat Durians is a new sensation, worth a voyage to the East to experience."

Durra. See *Sorghum vulgare*.

Dusty Miller. *Cineraria maritima*.

Dutch-Clover. *Trifolium repens*.

Dutchman's Breeches. *Dicentra cucullaria*.

DYS

Dutchman's Pipe. See *Aristolochia sipho*.

Duva'lia. Named after *H. A. Duval*, of Paris, a botanical author. Nat. Ord. *Asclepediaceæ*.

A genus of succulent Stapelia-like plants, all natives of South Africa. *D. polita* has purplish red flowers with a dull orange center, somewhat resembling a bird's head, when viewed sideways. They are produced in threes or fours and open successively. The stems and branches are two to three inches long, and about half an inch thick, somewhat clavate, and more or less decumbent and rooting. It is one of the finest plants of the genus, and was introduced in 1874.

Duva'ua. In honor of *M. Duvau*, a French botanist. Nat. Ord. *Anacardiaceæ*.

Singular half-hardy shrubs from Chili. The leaves of the plants of this genus, if thrown upon water, will start and jump about in a very extraordinary manner. They have a strong smell of turpentine. The flowers are white, produced in small spikes, and are succeeded by dark purple berries. They require green-house treatment. Propagated by cuttings. Introduced in 1830.

Dwarf. Of small size compared with other species of the same genus, or with other varieties of the same species.

Dwarf Dandelion. *Krigia Virginica*, a small hardy annual, with yellow flowers resembling a small Dandelion, common in New England and southward.

Dwarf Fan Palm. A common name for *Chamærops humilis*.

Dy'ckia. Named in honor of *Prince Salm-Dyck*, a German, author of a splendid work on succulents. Nat. Ord. *Bromeliaceæ*.

A small genus of green-house plants, resembling the Pine-apple in miniature, or a small Pitcairnia. *D. rariflora* is a very showy plant with orange-colored flowers. One or two other species of the same general character have been introduced into the green-house. Propagated by division or from seeds.

Dyer's Green-Weed. See *Genista tinctoria*.

Dyer's Rocket, or Dyer's Weed. A popular name of *Reseda luteola*, allied to Mignonette.

Dynamis. A power. A figurative term employed by Linnæus to express the degrees of development of stamens. Thus his *Didynamia* signified stamens of two different lengths, or of two different degrees of development.

Dypsis. From *dupto*, to dip; application not given. Nat. Ord. *Palmaceæ*.

A genus of five or six species of dwarf stove-house palms, all natives of Madagascar. *D. Madagascariensis*, *D. Hildebrandtii*, and *D. pinnatifrons*, the only species yet introduced, are choice sorts, and well worthy of a place in any collection.

Dysodia. From *dusodes*, ill-smelling; in allusion to the unpleasant odor of some of the species. Nat. Ord. *Compositæ*.

A genus of about ten species of erect or diffuse pubescent plants, closely allied to *Tagetes*, and natives of Mexico, Central America, and the South-western States. *D. chrysanthemoides*, a dwarf annual with pinnatisect leaves, grows in great profusion over the western prairies of Illinois, and in autumn exhales so unpleasant an odor as to sicken travelers.

E.

EAG

Eagle Wood. An odoriferous wood containing an abundance of resin and a fragrant essential oil. This is supposed to be the Aloes wood of Scripture. See *Aquilaria agallocha.*

Ea'rina. From *earinos*, the spring; the time of their flowering. Nat. Ord. *Orchidaceæ.*

A genus of very rare Orchids. The stems are terminated by dense oblong spikes of white flowers, which are delightfully fragrant. They were introduced from New Zealand in 1843.

East Indian Rose Bay. See *Tabernæmontana.*

Earth-nut, or **Earth Chestnut.** *Bunium flexuosum.*

Easter Flower. Mexican. *Poinsettia pulcherrima.*

Easter Giant. *Polygonum bistortum.*

Easter Lily. *Lilium Harrisii* and *L. longiflorum.*

Ebena'ceæ. A natural order of trees or shrubs, not milky, with alternate leathery and entire leaves. The flowers are hermaphrodite (perfect), or pistillate and staminate. The fruit is a round or oval berry with albuminous seeds. They are chiefly natives of the East Indies, but are also found in tropical Africa, at the Cape of Good Hope, in South America, Brazil, Australia, northern Asia, and China. The trees yield a hard and durable timber. The heart-wood of different species of *Diospyros* is the Ebony of commerce, of which there are many varieties. The Keg-fig of Japan is edible fruit of *Diospyros Kaki*, and our common Persimmon is the fruit of *Diospyros Virginiana.* There are five recognized genera and about 250 species; *Diospyros, Royena, Euclea,* and *Maba* are examples.

E'benus. A genus of *Leguminosæ*, numbering about eight species, natives of the high mountainous regions of eastern Europe and Asia Minor. They are elegant little shrubs, or biennial plants, bearing their bright pink or violet blossoms on dense spikes or round heads in great profusion. They are easily increased by seeds or division.

Ebony-tree. See *Diospyros.*
Jamaica. *Brya Ebenus.*
Mountain. *Bauhinia variegata.*
Senegal. *Dalbergia Melanoxylon.*

Eburneus. Of the color of ivory.

Ecba'llium. Squirting Cucumber. From *ekballo*, to cast out; because the seeds are violently expelled from the ripe fruit. Nat. Ord. *Cucurbitaceæ.*

The Squirting Cucumber is so called from the remarkable way in which it squirts out its seeds along with the semi-fluid contents of the fruit. When the fruit is quite ripe a very slight touch causes it to separate from its stem, and by the violent elastic contraction of the pericarp, or rind of the fruit, the whole of the contents are ejected from the opening made by its separation from the stem. It is a native of the south of Europe, where the drug known as Elaterium (a powerful cathartic) is procured from it. Syn. *Momordica Elaterium.*

ECH

Eccremoca'rpus. From *ekkremes*, pendant, and *karpos*, fruit; position of seed-pods. Nat. Ord. *Bignoniaceæ.*

The best known species, *E. scaber*, is a half-hardy climber, of exceedingly vigorous growth, producing a great profusion of orange-scarlet flowers, and ripening an abundance of seed. If cut down to the root in autumn, and covered with dead leaves, straw, or anything to preserve it from the frost during winter, it will shoot up again the following spring. It may be propagated by cuttings, but it ripens seed so freely that it is most easily raised from them. They should be sown in autumn, as soon as they are ripe, on a slight hot-bed; and the plants, which should be kept in a frame or green-house, should be shifted two or three times till they are ready for planting out in April or May. The species are natives of Peru. Introduced in 1824. Syn. *Calampelis.*

Echea'ndia. Named after *Greg. Echeandia*, botanical professor at Saragossa. Nat. Ord. *Liliaceæ.*

A small genus of exceedingly rare, tender herbaceous perennials, discovered near the Real del Monte Mines, Mexico, by Mr. John Rule, and sent by him to England in 1837. It is allied to the *Anthericum*, which in habit of growth it resembles. The flower spike grows nearly three feet high, branching, and during July and August it produces daily several Asphodel-shaped flowers, of a bright orange-yellow color. It is increased from seeds.

Echeve'ria. In honor of *M. Echeveri*, author of the splendid drawings of the Flora Mexicani. Nat. Ord. *Crassulaceæ.*

The Echeverias are succulent plants, all more or less ornamental, particularly so when in flower. Some are dwarf and herb-like in their manner of growth, and others more or less shrubby in their habit. They are all free-growing plants, suitable for rockeries, edgings, or massing; where "carpet bedding" is done the *Echeverias* are indispensable. They require the protection of the green-house during winter, and, like most other succulents, to be carefully watered; in fact, the soil must never approach a soddened condition. They must, however, be freely supplied with water while in a growing condition. The Echeverias are readily propagated by the leaves, especially those produced along the flower-stem, and by seeds. They are chiefly natives of Mexico, and require a very open or porous soil, consisting of loam and coarse sand. Some of the more popular kinds are of recent introduction. A number of the species are now classed with *Cotyledon.*

Echina'cea. Purple Cone-Flower. From *echinos*, a hedge-hog; referring to the involucre, or scaly covering of the flowers. Nat. Ord. *Compositæ.*

A small genus of coarse-growing, hardy herbaceous perennials, bearing large purple or reddish flowers, with a dark centre. They are common south and west.

ECH

Echinate. Furnished with numerous rigid hairs or straight prickles; as the fruit of *Castanea vesca, Amomum subulatum,* etc.

Echi'nocа'ctus. From *echinos,* hedge-hog, and *cactus;* a name given by Theophrastus to a spiny plant. Nat. Ord. *Cactaceæ.*

This genus is one of the most beautiful of the order; the grotesque appearance of the plants, crowned as they are at times with their large flowers, renders them objects of much attention among the admirers of this class of vegetable forms. The soil we prefer for their culture is a mixture of rich loam, thoroughly decomposed manure, and sand, in equal quantities. This must be well drained by mixing small lumps of charcoal and pots-herds with the earth, and by placing a layer of the same material at the bottom of the pots. Through the winter the plants should be kept in a reduced temperature, such as that of a green-house, and have little or no water, but in summer they grow and flower more freely if allowed a stove temperature and a liberal supply of moisture. Bright sunlight is essential to their vigor at all seasons, but most particularly so in autumn and winter. The genus comprises many species; more than half of them natives of Mexico, the rest being distributed throughout South America. They are propagated by offsets, which should be dried a few days after being taken off the plant. First introduced in 1796.

E'chinops. Globe Thistle. From *echinos,* a hedge-hog, and *opis,* like; referring to the spiny scales of the involucre, or covering of composite flowers. Nat. Ord. *Compositæ.*

A genus of hardy annual, biennial, and perennial plants, generally with blue flowers, arranged in dense round clusters at the ends of the branches, so that each cluster of flower-heads has the appearance of a single head, containing many florets. They are all of easy culture, and will grow in almost any situation. For moderate-sized gardens, they are too rank growing and coarse to be useful. They are natives of southern Europe, and are propagated by seeds or division.

Echino'psis. A small genus of *Cactaceæ,* now generally placed as a section of *Cereus.*

Echi'tes. From *echis,* a viper; referring to the snake-like coils of the twining shoots. Nat. Ord. *Apocynaceæ.*

A genus of magnificent green-house climbing plants, with yellow, white, red, and crimson flowers, and richly-veined leaves. They closely resemble *Dipladenia,* which may be referred to for culture. It is an extensive genus, pretty generally distributed throughout South America and the East Indies.

E'chium. Viper's Bugloss. From *echis,* a viper; seeds like the viper's head. Nat. Ord. *Boraginaceæ.*

Perennial, biennial, and annual plants generally with rich dark-blue flowers; though some of the kinds that are natives of the Cape of Good Hope and the Canaries have red, white, or violet flowers. They are easily propagated by seeds or division of the root. First introduced in 1683.

Edelweiss. See *Leontopodium.*

Edged. When one color is surrounded by a very narrow rim of another color.

EGY

Edgeworthia. Named for *M. P. Edgeworth,* an East Indian botanist. Nat. Ord. *Thymelaceæ.*

Ornamental evergreen green-house shrubs with yellow flowers, closely allied to Daphne. Natives of China and Japan.

Edwa'rdsia. In honor of *Sydenham Edwards,* a celebrated English botanical draughtsman. Nat. Ord. *Leguminosæ.*

Half-hardy low trees and shrubs, with pinnate leaves and very curiously-shaped seed pods and flowers, which are of a dark golden yellow. They are beautiful plants for lawn decoration, but must be protected in winter. The species are all natives of New Zealand, and are propagated by cuttings. Introduced in 1772. Syn. *Sophora.*

Eel-Grass. See *Vallisneria.*

Effuse. Applied to inflorescence, and means a kind of panicle with a very loose arrangement.

Egg-Plant. The Egg-Plant of our gardens is *Solanum melongena, var. ovigerum,* a native of North Africa. It was first introduced into England in 1596, but for a long time was little known or used, owing much to the climate being unsuited to the perfect development of the fruit. In India and other hot countries it is a favorite article of food, and for many years it has steadily grown in favor in this country. In India it is served up with sugar and wine, and in Italy and France it is used in stews and soups. Of this species there are several varieties, the favorite being the "Improved New York Purple," which is a strong grower, the plants yielding from five to eight fruits, some of which are of enormous size; the size, however, depends much on the soil and method of culture. For perfection of growth, a very rich soil, plenty of moisture, and warm weather are required, with the addition of frequent hoeings. Under such circumstances, fruit seven inches in diameter and eight to nine inches long, and weighing five to six pounds, is easily obtained. There are several other species occasionally grown in our gardens, one having bright scarlet, another white fruit, each about the size of a hen's egg, which are chiefly grown as curiosities. The white variety is edible, however, and is perhaps the most delicately flavored. Seeds should be sown about March 1st, in a temperature at no time lower than 70° Fahr., and from the seed bed pricked out in shallow boxes, and from these, again, into small flower pots, to be planted out in the open ground when all danger from frost is past, as the plant, being tropical, is at all times sensitive to cold.

Eggs and Bacon. *Linaria vulgaris;* and *Lotus corniculatus.*

Eggs and Butter. *Linaria vulgaris.*

Eglantine. Sweet Briar. *Rosa rubiginosa.*

Egyptian Bean. See *Dolichos Lablab.*
Of Pythagoras. *Nelumbium speciosum.*

Egyptian Lily. See *Richardia.*

Egyptian Lotus. *Nymphæa Lotus.*

Egyptian Pea. See *Cicer.*

Egyptian Rose. *Scabiosa arvensis,* and *S. atropurpurea.*

Egyptian Thorn. *Cratægus Pyracantha.*

EHR

Ehre'tia. In honor of *D. G. Ehret*, a celebrated German botanical draughtsman. Nat. Ord. *Boraginaceæ.*

A small genus of very beautiful tropical trees and shrubs, producing large corymbs of fragrant, mostly white flowers. Introduced in 1823; propagated by cuttings.

Ehre'tia'ceæ. A natural order, now placed as a tribe of *Boraginaceæ.*

Eichho'rnia. Named in honor of *J. A. F. Eichhorn*, an eminent Prussian. Nat. Ord. *Pontederiaceæ.*

Very interesting stove aquatics, natives of South America and tropical Africa. *E. crassipes*, Syn. *Pondeteria azurea*, or *P. crassipes*, grows freely, floating on the surface of the water, without the roots being in the soil; the other species are easily grown in pots filled with coarse, rather rich soil, immersed and kept in water.

Elæagna'ceæ. A natural order of trees or shrubs, more or less covered with minute silvery or brown scurfy scales, and natives chiefly of the northern hemisphere. There are four known genera and about thirty species. *Shepherdia*, *Elæagnus*, and *Hippophaë* are examples of the order.

Elæa'gnus. Oleaster, or Wild Olive. From *Elaia*, an olive, and *agnos*, a chaste tree; resemblance the tree bears. Nat. Ord. *Elæagnaceæ.*

A genus of hardy and half-hardy ornamental low-growing trees or shrubs, natives of southern Europe and Asia. *E. hortensis*, is an old garden shrub, noted for the silvery whiteness of its foliage, and, on this account, is often selected to plant in a conspicuous situation, or to contrast with shrubs of darker foliage. Its flowers are produced in May, are quite small, pale yellow, and fragrant. *E. argentea* is described by Gray, under the name of *Shepherdia argentea*, which see.

Elæ'is. The Oil Palm. From *Elaia*, the olive; similarity of expressing oil from the fruit. Nat. Ord. *Palmaceæ.*

This interesting genus of Palms consists of but few species, the minor ones being natives of South America. *E. Guineensis*, the most important species, abounds on the west coast of Africa. It grows to the greatest perfection in shady places, where the trees attain a height of twenty feet. The immense groves interspersed with the larger vegetation of that country, gives the landscape an indescribable beauty. The fruits in this species are borne in immense dense heads, measuring from one to two feet long, and from two to three feet in circumference, the individual fruit, or nut, being about an inch and a half long by an inch in diameter. These fruits yield the Palm Oil of commerce, the collecting of which is the principal industry of the negroes in many parts of Africa, but more particularly on the west coast. The oil is obtained by bruising the fruit, boiling in water, and skimming it off as it rises to the surface. The Palm Oil of commerce is about the consistence of butter, of a deep orange yellow, becoming lighter upon being exposed to the air, and when fresh it emits a sweet violet odor. In Africa this oil is used as butter under the name of *ghea*. A soup is also made of it, that forms an important

ELI

article of food. The vast productiveness of the plant is evident from the fact, that the importations into Great Britain alone, in 1860, amounted to more than eight millions of dollars. The chief uses to which this oil is applied is in the manufacture of candles, Palm Oil soap, and for lubricating oil for machinery.

Elæoca'rpus. From *Elaia*, the olive, and *karpus*, fruit; resemblance of the fruits. Nat. Ord. *Tiliaceæ.*

A genus of handsome trees belonging to the Linden family. They are natives of South America, Australia, and the East Indies. The flowers are white or green, quite showy. The rough bony fruit, or stone, has a sculptured appearance, and is used for necklaces and other articles of ornament. The fruit is surrounded by an edible pulp, and is pickled like olives. The bark of some of the species affords an excellent dye, varying from light brown to deep black; it is highly valued for its permanency.

Elæode'ndron. Olive Wood. From *Elaia*, an olive, and *dendron*, a tree; alluding to the resemblance. Nat. Ord. *Celastraceæ.*

A genus of medium-sized evergreen trees, common in Africa, India, the south of Europe, and is also abundant in the Holy Land. The trees grow from thirty to forty feet high, much branched, with rough, scraggy trunks, and furnish the Olive Wood, used so much in turning and various small works, such as boxes, charms, trinkets, and small cabinet work. The fruit is much esteemed and yields an oil something like that of the true Olive, *Olea Europæa*, though of an inferior quality.

Elder. American. *Sambucus Canadensis*, and the genus *Iva.*
British. *Sambucus nigra.*
Marsh, or Water. *Viburnum Opulus.*
Poison. *Rhus venenatum.*
Wild, of North America. *Aralia hispida.*

Elecampane. See *Inula Helenium.*

Elephant's Apple. *Feronia Elephantum.*

Elephant's Ear. The genus *Begonia*, and *Colocasia esculenta.*

Elephant's Foot. See *Testudinaria Elephantipes.*

Elephant's-trunk Plant. *Martynia proboscidea*, and *Adenium namaquanum.*

Eletta'ria. A synonym of *Amomum*, which see.

Eleusi'ne. Derived from *Eleusis*, where was a celebrated temple of Ceres. Nat. Ord. *Graminaceæ.*

A family of curious grasses, mostly inhabitants of the East Indies. *E. oligostachya*, one of the most ornamental species, is a dwarf grass, well adapted for the flower border, or to be used as a "dried grass" for winter-bouquets; it is native of China, perfectly hardy, and of perennial duration. *E. coracana*, is grown in Japan as a grain crop for its large farinaceous seeds.

Elichry'sum. See *Helichrysum.*

Elise'na. Named in honor of *Princess Elise*, sister of Napoleon. Nat. Ord. *Amaryllidaceæ.*

A small genus of strong-growing bulbs from Peru. The flowers are borne in a cluster on a

scape nearly three feet high, pure white and fragrant, closely resembling *Ismene*. They require green-house treatment. To bring them into flower, water should be withheld after their season's growth, until the flower spike appears, when they should have the warmest position in the green-house, with plenty of air and water. Propagated by offsets. Introduced in 1837.

Elk-Bark. *Magnolia glauca.*

Elk's-horn Fern. *Platycerium alcicorne.*

Elloboca'rpus oleraceus. Pod Fern. A synonym of *Ceratopteris thalictroides*, which see.

Elm. American, or White. *Ulmus Americana.*
American Cork, or Rock. *Ulmus racemosa.*
Moose, Red, or Slippery. *Ulmus fulva.*
Witch, or Wych. *Ulmus Montana.*

Elo'dea. Water Thyme. From *elodes*, a marsh; the habitation of the plants. Nat. Ord. *Hydrocharidaceæ.*

A small genus of aquatic or marshy plants, natives of this country and western Asia. *E. Virginica* is rather a handsome plant, with flesh or pink-colored flowers, disposed in axillary or terminal clusters.

Elongated. Lengthened or stretched out; when any part of an organ is in any way remarkable for its length in comparison with its breadth.

E'lymus. Lyme-Grass. Wild Rye. According to Linnæus it is named from *elyo*, to cover. Nat. Ord. *Graminaceæ.*

A genus of strong-growing grasses, inhabitants of both the new and the old worlds. Some of the species are grown for economic purposes, others for their ornamental character. *E. arenarius* affords the nearest approach to a grain crop attainable by the Icelanders, and this only can be cultivated in very favorable localities. They highly appreciate the seeds, call them Melur, and eat them raw or made into cakes. It is also useful for binding moveable sand hills, etc., by means of its long creeping rhizomes. *E. histrix*, is a native species, and is grown for ornamental purposes. It is popularly known as Bottle-brush Grass, and is referred by Gray to the genus *Gymnostichum.*

Emarginate. Having a small notch in the end, as if a piece had been taken out.

Embossed Cypress. See *Glyptostrobus.*

Embryo. The rudiment of a plant contained in the seed. It makes its first appearance soon after the pollen has fertilized the ovule. *Fixed embryo*, a leaf bud.

Empetra'ceæ. A natural order of shrubs with heath-like, evergreen leaves, without stipules, and small axillary flowers, which are usually imperfect. They are natives chiefly of the northern parts of Europe and America. There are four known genera and five species. *Empetrum*, *Ceratiola* and *Corema* are examples of the order.

Empe'trum. Crake-berry, or Crow-berry. From *en*, upon, and *petros*, a rock; in allusion to the place of growth. Nat. Ord. *Empetraceæ.*

E. nigrum, a native hardy species, is an ornamental evergreen, low-spreading, heath-like shrub, bearing edible brownish-black berries; well adapted for a damp situation on a rockery.

Encephala'rtos. From *en*, within, *kephale*, the head, and *artos*, bread; the inner part of the top of the trunk being farinaceous. Nat. Ord. *Cycadaceæ.*

This is a small genus separated from *Zamia.* They are in all respects very similar plants, require the same treatment, and are natives principally of the Cape of Good Hope. Several of the species are valuable decorative plants.

Enchanter's Nightshade. See *Circæa.*

Encholi'rion. A genus of *Bromeliaceæ*, consisting of a few Brazilian herbaceous plants, usually referred to *Vriesia*, which see.

Endive. *Cichorium Endivia.* This hardy annual is a native of the East Indies, and is considered a valuable salad at a time when few other vegetables are furnished for the table. Like the lettuce, its leaves are used before its flowering stem begins to appear. These leaves are very hard and bitter when exposed to the air; they are therefore blanched, and if this be properly performed they become crisp and tender, and retain only an agreeable bitterness. Many varieties of the Endive are included in seedsmen's lists, all of which are the results of selection and cultivation.

Endive. Wild. See *Cichorium.*

Endocarp. The lining of a carpel; the inner surface or lining of a fruit, representing at that time the upper surface of a carpellary leaf. The stone of a Cherry is its endocarp.

Endogens. A large class of plants to which the name of *Monocotyledons* is also given. "They have a cellular and vascular system, the latter exhibiting spiral vessels. Their stem is endogenous, that is to say, increases in diameter by the addition of woody vessels towards its interior, the outer part being the oldest and densest, and hence the name Endogens, inward-growers; bundles of woody, spiral, and pitted vessels are scattered throughout the cellular tissue; there is no pith, no separable bark, no woody rings or zones, and no true medullary rays. The age of woody Endogens cannot be determined by counting concentric rings, as in Exogens. The leaves are usually continuous with the stem, and do not fall off by articulations; and when at length they separate, their bases leave marks or scars at definite intervals on the stem, as may be seen in Palms. The stems of Endogens are often subterranean, in the form of corms, rhizomes, or bulbs. The leaves have stomates, and their venation is usually parallel, though in a few cases it is slightly reticulated. The flowers have stamens and pistils, and three-membered symmetry. The ovules are contained in an ovary, and the embryo has one cotyledon, or seed lobe, whence they are called monocotyledonous.

Endosmose. That force which causes a viscid fluid lying within a cavity to attract to itself a watery fluid through an organic membrane.

Engelma'nnia. Named in honor of *George Engelmann*, of St. Louis, a celebrated botanist. Nat. Ord. *Compositæ.*

E. pinnatifida, the only species, is an erect, hardy perennial herb, with golden-yellow flowers one to two inches in diameter. It grows one to two feet in height, and thrives in ordinary garden soil. It was introduced to cultivation from the western prairies in 1881.

ENG

English Mercury. *Chenepodium Bonus Henricus.*

Enkia'nthus. From *enkous*, enlarged, and *anthos*, a flower; the flowers are swollen in the middle. Nat. Ord. *Ericaceæ.*

Highly beautiful objects, which, from their habit of blooming in the winter and early spring, are much esteemed for ornamenting the green-house and conservatory. They should have a shaded situation out of doors through the summer. Propagated by cuttings, which require to be of firm, young wood. There are five species, natives principally of Japan, China, and the East. First introduced from China in 1812.

Ensiform. Quite straight, with the point acute, like the blade of a broadsword or the leaf of an Iris.

Enta'da. The Malabar name. Nat. Ord. *Leguminosæ.*

A genus of ornamental hot-house climbers, consisting of five species, with white or yellow flowers, produced either in spikes at the bases of the leaves, or in bunches at the ends of the branches. The most remarkable feature of the genus is the extraordinary length of its pods, which are flat and woody, divided into numerous joints, each containing one large, flat, polished seed. In *E. scandens*, a native of the tropics of both hemispheres, the pods often measure six or eight feet in length. The seeds are nearly two inches across by half an inch thick, and have a hard, woody, and beautifully-polished shell, of a dark-brown or purplish color. In the tropics the natives convert these seeds into snuff-boxes, scent-bottles, and various other trinkets. In this country they are much worn as charms on watch-guards, and are very common in their natural state on the side-walk stands in Broadway, New York. They are natives of the West and East Indies and the South Sea Islands. The seeds are often picked up on the coast of Florida, and even as far as the coast of Finland, having been conveyed there by the great oceanic currents. They are sold under the name of Sea Beans and Florida Beans.

Eome'con. A genus of *Papaveraceæ*, containing only one species, described as intermediate between *Stylophorum* and *Sanguinaria*, from both of which, however, it differs widely in its scapose habit and racemose flowers. Unlike the Poppies, also, the *Eomecon* holds its individual flowers for many days together, and produces them in such abundance from May to September as to merit a first place in all good collections. It is quite a novelty, and with its yellow-green cyclamen-like leaves and showy flowers forms quite a picturesque group in the herbaceous border. It was discovered at Kwangsi, China, in 1884, by Dr. Henry, and is readily increased by means of its numerous runners.

Eope'pon. A genus of ornamental gourds, consisting of two species, formerly, and still, generally included in the genus *Trichosanthes*, which see.

Epacrida'ceæ. A natural order of shrubby plants, with usually simple alternate leaves, and regular and perfect flowers in spikes or racemes. Natives of the Indian Archipelago and Australia. There are thirty-two known

EPH

genera and over 300 species. *Epacris*, *Styphelia*, and *Dracophyllum* are examples of the order.

Epa'cris. From *epi*, upon, and *akros*, the top; The Epacris grows upon the tops of hills and on rising grounds. Nat. Ord. *Epacridaceæ.*

An extensive genus of ornamental shrubs from Australia, the species of which are highly valued, both for their graceful beauty and the early period at which they produce their abundant flowers. For a proper method of treatment, we quote from the Florist's Journal: "The method we are about to recommend for the management of these lovely plants will be found to differ considerably from the ordinary course of treatment, but as we have found it so decidedly preferable, there can be no hesitation in advising its adoption. To begin, we select young, healthy plants, and in February remove them from the small pots in which they have been grown into others three or four sizes larger, according to the apparent strength of the individual, using a very sandy soil; the rougher and more turfy the soil is the better the plants will thrive. Particular attention should be paid to drainage. The plants are then cut back to within four or five joints of their last growth and are placed in a gentle heat, where they soon 'break' vigorously. These new growths are stopped by pinching off their tops two or three times in the course of the summer, taking care, however, to discontinue it after July, so that the last shoots may have time to ripen before the winter, and, by giving proper attention to watering, they will attain a length of a foot or more, and make nice little specimens to bloom in the following spring. After they have then done flowering, they are again repotted, and, instead of being stopped in their after-growth, are at once cut back to very near the base of the preceding year's shoots, and are then allowed to grow as far as they please, training them into any desirable form. Thus, instead of a few flowers on several small stems, we have long spikes full of flowers, increasing the general beauty of the plants to an amazing extent. Every year they are cut down in the same manner, and each season more numerous spikes are produced. We must observe, however, that after the first season the plants are not subjected to a high temperature, choosing in preference a shaded, airy place for them to make their new wood through the summer, removing them about August to a sunny position, in order to ripen the recent shoots; in other respects ordinary attention is all that is required." Hardly as good results can be obtained in this country, as they suffer, like the Heath, from our long, dry, hot summers. Propagated by cuttings of the tips of the shoots when from one to two inches in length, in spring or early summer. *E. grandiflora*, one of the finest species, was introduced in 1803.

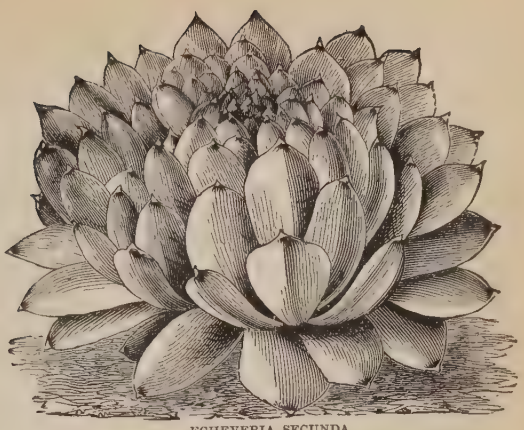
Ephe'dra. The Greek for the Hippuris, or Horse-tail, which it resembles. Nat. Ord. *Gnetaceæ.*

This genus consists of evergreen trailing shrubs with numerous slender-jointed, green branches, and small, scale-like leaves. These shrubs inhabit the rocky shores of the Mediterranean and salt plains of Asia. Some of the species are very ornamental, but are not suf-

ENDIVE (WHITE CURLED).

EGG PLANT (WHITE).

EGG PLANT (N. Y. IMPROVED).



ECHEVERIA SECUNDA.

EGG PLANT (LONG PURPLE).

EPIPHYLLUM TRUNCATUM.

ERICA.

ESCHSCHOLTZIA CALIFORNICA.

ERYSIMUM.

ERANTHIS (WINTER ACONITE.)

ERIANTHUS.

ERYTHRINA (CORAL PLANT.)

EPH

ficiently hardy to stand the winters, unprotected, north of the Carolinas. One of the species, *E. antisyphilitica*, is said to contain large quantities of *tannin*.

Ephemeral. Existing for, or less than, one day; as where a corolla expands for a few hours at most, and then fades.

Epide'ndrum. From *epi*, upon, and *dendron*, a tree; the plants are usually found growing on the branches of trees. Nat. Ord. *Orchidaceæ*.

This is an extensive and, for the most part, beautiful genus of epiphytal Orchids. All of them may be grown on billets of wood or on cork, or, where it is preferred, for the stronger growing species, pots may be used, and in the latter case it is indispensable that the soil be porous and well drained. It should consist of equal parts of sphagnum moss and fibrous peat, filling the pots for two-thirds their depths with broken potsherds, and when the plants are placed in them, the base of their pseudo-bulbs must be kept considerably above the rim, so that water may not lodge between them. The same relative variations of temperature should be observed for these as mentioned for Dendrobium, keeping it at an average of ten degrees lower than recommended for that genus; and as the same principles govern the growth of each, the like changes of atmospheric influence are necessary in either case. The genus consists of over 300 species, distributed throughout the West Indies, Mexico, and South America. Propagated by division. The first species was introduced in 1738.

Epidermis. The true skin of a plant, immediately underlying the cuticle.

Epigæ'a. Trailing Arbutus. From *epi*, upon, and *gaia*, the earth; referring to its trailing habit. Nat. Ord. *Ericaceæ*.

E. repens, the only species, is one of our most beautiful native early spring-flowering plants. It is a low-growing, evergreen shrub, producing axillary clusters of small rose-colored flowers, remarkable for their rich, spicy fragrance. They are usually found in the shade of Pines or Scrub Oaks. In warm, sheltered situations they show their flowers early in April. It is commonly known on Long Island, where it grows in great abundance, as Trailing Arbutus, in New England as May Flower, and in many localities as Ground Laurel. It can be easily grown in the shaded border by removing the plant from the woods in autumn, being careful not to disturb the roots. After planting in a sandy soil, protect from sun and winds by a slight covering of dry leaves. Clumps carefully taken up in autumn, and put in a cool green-house in February, will come into flower in March.

Epigæ'us. Growing on land, in contradistinction to growing in the water. Also when any part of a terrestrial plant grows close to the earth.

Epigynous. Upon the ovary; a term applied when the outer whorls of the flower adhere to the ovary, so that their upper portions alone are free, and appear to be seated on it, as in *Umbelliferæ*, etc.

Epilo'bium. Willow Herb. From *epi*, upon, and *lobos*, a pod; flowers superior or seated on a seed-pod. Nat. Ord. *Onagraceæ*.

EPI

A genus of tall-growing, hardy herbaceous plants, chiefly natives of Europe, some of which have become naturalized in this country. Several of our native species are showy plants, with large spikes of pink flowers, that make them conspicuous border plants. They are all of easy culture, taking care of themselves when once planted, and are increased by division in spring, or from seeds.

Epime'dium. Barrenwort. From *epi*, upon, akin to, and *Medion*, a plant, said to be grown in Media; a name from Dioscorides. Nat. Ord. *Berberidaceæ*.

Ornamental hardy herbaceous perennials, with stalked compound leaves, and flowers of various colors. They form admirable, plants for rockwork and grow best in a compost of loam, and leaf mould. Propagated by division. Natives of Japan, Persia, Algeria, etc.

Epipa'ctis. Very pretty hardy orchids, natives of Europe, and Russian Asia. Stem one to two feet high, leafy, bearing a loose raceme of purple, brown, or white flowers. They are of easy culture in shady borders, and form excellent subjects for naturalizing in artificial bogs, or in moist, peaty spots.

Epi'phora. A pretty little terrestrial Orchid, from South Africa, with yellow flowers streaked with red. *E. pubescens*, the only species, was taken from *Polystachya*.

Epiphyllous. Either growing upon or inserted on a leaf.

Epiphy'llum. Crab's Claw Cactus, Lobster-leaved Cactus. From *epi*, upon, and *phyllon*, a leaf; flowers borne on the ends of the leaf-like branches. Nat. Ord. *Cactaceæ*.

A genus of very beautiful Cactaceous plants, natives of Brazil, where they are generally found upon the trunks of trees. The varieties are numerous and are largely cultivated for their showy flowers. *E. truncatum* and its varieties are the kinds usually cultivated in our green-houses, and are among the most highly colored and beautiful of our winter-flowering plants. They are often grafted on *Cereus triangularis*, *C. grandiflorus*, *C. serpentinus*, and others, but do best, perhaps, on the *Pereskia*. A large symmetrical head is easily formed, and with proper attention will make a plant worthy of a situation in any green-house. Their culture is of the easiest description; delighting in a rich, well-drained, sandy soil, they should have plenty of air, water and sunlight while they are growing and watered sparingly during the winter months until required to be brought into bloom. The Epiphyllum is one of the best of sitting-room plants, and may be had in bloom from November to March with good management. There were formerly many species included in this genus, most of which are now found in *Cactus*, *Cereus*, and *Phyllocactus*.

Epiphytes. Plants which grow upon the surface of others, without deriving any nutriment from them, as many Mosses and Orchids.

Epigy'nium leucobotrys. A synonym of *Vaccinium leucobotrys*.

Epipre'mnum. From *epi*, upon, and *premnon*, a trunk; in allusion to the species rooting upon the trunks of trees. Nat. Ord. *Aroideæ*.

A genus of about eight species of climbing evergreen plants from the Malayan

Archipelago and the islands of the Pacific. *E. Mirabile*, the Tonga Plant, a native of Fiji, is thus described by N. E. Brown: "This is an ornamental climber, of rapid growth, with bold, dark green, pinnatisect leaves in the adult stage, and large inflorescences, resembling those of a *Monstera*. It is a very suitable plant for training up pillars, trunks of palms, tree ferns, etc., or the back wall of a stove; and besides its ornamental character, it is specially interesting for the manner in which the plant changes its appearance as it develops from its juvenile stage with small entire leaves, to its adult flowering stage with large pinnatisect leaves; as well as for its medicinal qualities, which appear to have been long known to the natives of the countries the plant inhabits."

Epi'scia. From *episcios*, shaded; occurring in their native habitats in shady places. Nat. Ord. *Gesneraceæ*.

Green-house herbaceous perennials, with beautifully colored foliage, and solitary flowers on short axillary stems. They make very pretty basket plants for the hot-house, the only place in which they thrive well. They grow best in sandy loam, and leaf mould, and are readily increased by cuttings. About thirty species have been described, all natives of Nicaragua, New Grenada, and the West Indies. *Alsobia, Centroselenia, Cyrtodeira, Physodiera* and *Skiophila* are now all referred to this genus.

Equal. Where one part is of the same general form, disposition and size, as some other part with which it is compared; applied to petals and sepals when they are equal in size and shape with each other.

Equestrian Star. One of the popular names of *Hippeastrum*.

Equinoctial. Plants whose flowers expand and close at particular hours of the day.

Equiseta'ceæ. A natural order of the higher Cryptogams which takes its name from the genus *Equisetum*, the only one the order contains. They are remarkable for the external resemblance which they bear in habit to *Casuarina* or *Ephedra*, and as regards the heads of fructification to *Zamia*. All resemblance, however, ceases there, and the natural affinities of the plants are with Ferns. There are about twenty-five species chiefly found in temperate northern regions; a few are sub-tropical. One of the latter group, *E. Martii*, attains in its native habitat (Brazil) the enormous height of thirty feet. "Dutch Rushes," used for scouring and polishing, are the stems of *E. hyemale*.

Equitant. A mode of vernation, or of arrangement of leaves with respect to each other, in which the sides or edges alternately overlap each other, as in *Morœa iridioides*.

Eragro'stis. Love-Grass. From *eros*, love, and *agrostis*, grass; in allusion to the beautiful dancing spikelets, whence the popular name. Nat Ord. *Graminaceæ*.

A very extensive genus of grasses, found in nearly every part of the habitable globe. Most of the species are very handsome; but none of them are of any value for agricultural purposes. *E. elegans* is a very ornamental species, somewhat resembling the *Brizas* in habit and gracefulness. It is especially adapted for border culture, and is one of the most beautiful for winter or dried bouquets.

Era'nthemum. From *eran*, to love, and *anthemon*, a flower; referring to the beauty of the flowers. Nat. Ord. *Acanthaceæ*.

A somewhat extensive genus of winter-flowering green-house plants, found pretty generally distributed throughout tropical and sub-tropical countries. The flowers are small, purple, white, blue, or rose-colored. They require the treatment of soft-wooded plants of the same class. The two species *E. tricolor* and *E. atropurpurea*, are equal to Dracænas in their beautiful crimson and carmine-colored foliage, which fits them either for massing outside or as specimens in the green-house. They are propagated by cuttings, and were first introduced in 1796.

Era'nthis. Winter Aconite. From *er*, spring, and *anthos*, a flower; referring to its early flowering. Nat. Ord. *Ranunculaceæ*.

A small genus of hardy tuberous-rooted plants, natives of Italy and Siberia. *E. hyemalis* is the well-known Winter Aconite. It is one of the earliest and most hardy of spring flowers, throwing up its pretty yellow blossoms long before the snow disappears, and continuing in flower for several weeks. This is the only species under cultivation, and is freely propagated by division of the tubers. It has been under cultivation since 1596.

Eremostachys. From *erymos*, deserted, and *stachys*, a spike; alluding to the flowers growing in sparse verticillate spikes. Nat. Ord. *Labiatæ*.

Very pretty hardy perennials, natives of western and central Asia. *E. laciniata*, the only species in cultivation, bears yellow flowers in ten to twenty-flowered whorls, the upper ones approximate. Increased by division or seeds.

Eremu'rus. From *eremos*, solitary, and *oura*, a tail; referring to the flower spike. Nat. Ord. *Liliaceæ*.

A genus of very pretty, hardy, herbaceous, large, Hyacinth-like plants, consisting of about eighteen species, natives principally of Asiatic Russia. The yellow, white, or rose-colored flowers are borne on elongated racemes; the leaves are radical and linear. They are of easy culture, and are increased by division.

Ergot. A disease of Corn, Rye, etc., produced by Fungi.

E'ria. From *erion*, wool; referring to the down on the leaves of some of the species. Nat. Ord. *Orchidaceæ*.

A small genus of pretty flowering hot-house Orchids, allied to Dendrobium, mostly from the East Indies. They require the same treatment as Stanhopea, and are propagated by division; introduced in 1837.

Eria'nthus. Woolly Beard-Grass. From *erion*, wool, and *anthos*, a flower. Nat. Ord. *Graminaceæ*.

A small genus of tall-growing, reed-like grasses. *E. Ravennæ*, a rival to the Pampas Grass, though not so beautiful, is more valuable in this latitude, being perfectly hardy, and producing its graceful plumes in autumn in great abundance. It makes a magnificent lawn plant, and is propagated by root division and from seed. Introduced in 1824.

Eri'ca. Heath. From *erico*, to break; referring to the brittle nature of the wood. Nat. Ord. *Ericaceæ*.

This genus comprehends a great number of species, the most of which are very beautiful and interesting plants. Several hundred of the species, including all that are desirable for indoor culture, are natives of Table Mountain at the Cape of Good Hope. They all occupy elevated ranges, enjoying a pure air, refreshed by copious dews, and exposed for a long period to a dry, arid atmosphere. The Heath, however, can never be cultivated so successfully here as in England, as our climate is too dry and hot in summer. What is called the soft-wooded section, such as *E. persoluta* and its white variety, *E. hyemalis*, *E. Wilmoreana*, etc., can be grown here with success, and are exceedingly valuable, not only for winter green-house decoration, but for cut flowers. They are readily propagated by cuttings of half-ripened wood, which is in proper condition when it begins to turn brown. They are easily grown from seed, an interesting way, on account of the varieties produced when a little care has been given in cross-fertilization. The seeds should be sown in pots of finely-sifted peat and sand pressed tightly into the pot, well watered before sowing, and afterward covered with a bell glass. They should then be kept in a cool house or pit, where they can have an even temperature and moisture. The Cape species were first introduced into England in 1774.

Erica'ceæ. A natural order of shrubs or undershrubs, with evergreen, rigid, entire, whorled or opposite leaves without stipules. *Arbutus Unedo* is the Strawberry Tree. *Rhododendron arborrum* sometimes reaches in India a height of forty feet, and some species grow at an elevation of 16,000 to 18,000 feet in the Himalayas. Several species of *Azalea*, *Rhododendron* and *Kalmia* are natives of the United States. The plants of this order are highly prized for the beauty of their flowers. There are about fifty known genera and 900 species. *Erica*, *Rhododendron*, *Kalmia*, *Clethra*, *Arbutus*, and *Ledum* are examples of this order.

Eri'geron. From *er*, the spring, and *geron*, an old man; some being hoary with a downy covering early in the season. Nat. Ord. *Compositæ*.

A genus of coarse-growing, unpretending, herbaceous plants, found common in waste places throughout the United States; in some localities known as Fleabane. The plants are of no economic value.

Erino'sma. A synonym of *Leucojum*, which see.

Eri'nus. Meaning unknown. (The wild Fig-tree is the *Erinos* described by Dioscorides. It has, however, no resemblance to the *Erinos* of the moderns.) Nat. Ord. *Scrophulariaceæ*.

This is a small genus of hardy herbaceous Alpine plants, suitable for rock-work or other rough, uneven situations. They are low-growing plants, generally forming close tufts, producing lively purple and white flowers in early spring. Though perfectly hardy, they are impatient of water, and, consequently, should have the protection of a frame in winter, unless planted in a very dry situation. There are one or two evergreen species from the Cape of Good Hope, but they are little known. The hardy species are propagated by root division or from seed. First introduced into the garden in 1739.

Erinus. Prickly, rough.

Eriobo'trya. The Loquat, or Japanese Medlar, *E.* (*Mespilus*) *Japonica*, one of the *Pomaceæ*, is a native of Japan and the southern part of China, and is cultivated as an edible fruit in many parts of India. It is now placed under the genus *Photinia*, which see.

Eriocaula'ceæ. A natural order of marsh plants with narrow, spongy leaves. There are ten known genera and 220 species. None are cultivated except in botanic gardens. *Eriocaulon* is the typical example of the order.

Eriocne'ma. From *erion*, wool, and *kneme*, a knee; the joints are woolly. Nat. Ord. *Melastomaceæ*.

A small genus of green-house herbaceous plants, allied to the *Sonerila*, and natives of Brazil. The flowers are white, produced sparingly in little umbels on the end of a naked stalk. *E. marmoratum* has beautifully variegated leaves, green striped with broad bands of white. Its habit is not unlike some of the Begonias. Propagated by cuttings. Introduced in 1850.

Eriogo'num. From *erion*, wool, and *genu*, a joint; joints of the stems downy. Nat. Ord. *Polygonaceæ*.

A genus of pretty, summer-flowering hardy annuals and herbaceous or somewhat woody perennials. They are easily cultivated, and young plants may be obtained by division or from seed. The genus contains about one hundred species, natives of north-west America.

Erio'phorum. Cotton Grass. From *erion*, wool, and *phoreo*, to bear; in reference to the silky tails or coverings of the seeds. Nat. Ord. *Cyperaceæ*.

A very interesting genus of marsh or bog plants, commonly, but incorrectly, termed grasses. They are hardy herbaceous plants, growing in dense clumps or masses, very conspicuous and interesting, on account of the flowers of some of the species, the heads of which appear like tufts of cotton. One of the species is indigenous in this country, and several of them have been naturalized from Europe.

Erio'psis. From *eria*, a well-known genus of Orchids, and *opsis*, resemblance; woolliness of flowers. Nat. Ord. *Orchidaceæ*.

A small genus of Orchids, having the general appearance, while growing, of the genus *Eria*, but with gay, orange-colored flowers, resembling the *Vandas*. They are natives of Mexico and New Grenada, and are but little cultivated.

Eriospe'rmum. From *erion*, wool, and *spermos*, a seed; woolly-seeded. Nat. Ord. *Liliaceæ*.

A considerable genus of bulbs from the Cape of Good Hope, the flowers of which precede the leaves. The flowers have no special beauty, and the leaves always have a deformed appearance.

Erioste'mon. From *erion*, wool, and *stemon*, a stamen; referring to the woolly stamens. Nat. Ord. *Rutaceæ*.

A genus of handsome green-house plants from New Holland, of neat, compact habit of growth, and free-flowering. The flowers are

white or pinkish, produced singly at the axils of the leaves. They require plenty of air and light, and are propagated by cuttings of the young shoots in April. Introduced in 1824.

Eritri'chium. From *erion*, wool, and *thrix, trichos*, hair; plants woolly. Nat. Ord. *Boraginaceæ.*

A genus of handsome dwarf annual or perennial herbaceous plants, found throughout the temperate regions of the northern hemisphere, South Africa and Australia. *E. nanum*, the one most generally cultivated, has flowers of a brilliant sky-blue color, with a yellowish eye, not unlike those of *Myosotis alpestris*, but larger. It has been enthusiastically termed "The Glory of the Alpine Flora." *E. barbigerum*, introduced to cultivation from California in 1886, is a very pretty white-flowered annual species, the whole plant covered with long, spreading hairs. Increased by seeds or division.

Ero'dium. Heron's-bill. From *erodios*, a heron; referring to the resemblance of the style and ovaries to the beak and head of the heron. Nat. Ord. *Geraniaceæ.*

The genus Erodium differs from the Geranium and Pelargonium in the shape of its seed vessel. In all the three the seed-pod resembles the head and beak of a bird; in Geranium it resembles a crane's bill, in Pelargonium it is a stork's bill, and in Erodium a heron's bill. The species are dwarf annuals and perennials producing mostly lilac and purple flowers. Every part of the plant, when bruised, emits a strong peculiar odor. They form admirable plants for the rock-garden, particularly in dry, sunny situations and in sandy soil. Increased by division, or by seeds.

Erose, Eroded. Having the margin irregularly toothed, as if bitten by an animal; a term used to express a particular kind of denticulation, as in *Salvia pinnata.*

Erubescent. Reddish, blush-colored.

E'rvum. Lentil. From *erw*, tilled land, in Celtic; some of the species are pests in cultivated ground. Nat. Ord. *Leguminosæ.*

A genus justly classed as weeds, the only species of interest being *E. Lens*, the common Lentil, a plant of the greatest antiquity. It was from the seed of this that the pottage is supposed to have been made, for which Esau sold his birthright. It is held in high esteem in Egypt and Syria, and is considered an indispensable diet by the natives, who undertake long journeys. It is largely sold by druggists under the name of Ervalenta. This genus is now merged by "Hooker and Bentham" into *Vicia.*

Ery'ngium. Eryngo. From *Eryngion*, a name adopted by Pliny from Dioscorides. Nat. Ord. *Umbelliferæ.*

A very extensive genus of hardy annuals and herbaceous perennials, the latter being common throughout Europe. *E. maritimum*, Sea Eryngo, or Sea Holly, is a conspicuous plant along the English coast; the flowers are thistle-like, of a bright blue color. *E. amethystinum*, a native of Dalmatia, is one of the best of the perennial species; the flowers, as well as the bracts and upper part of the stems, have a beautiful blue tint. Some of the annual species are very beautiful border plants,

and if cut early, are useful as dried flowers in winter bouquets.

Eryobo'trya. Japan Evergreen Plum. From *erion*, wool, and *botrys*, a bunch of grapes; referring to the downy flower-racemes. Nat. Ord. *Pomaceæ.*

E. Japonica, the only species, is a half-hardy evergreen shrub closely allied to *Photinia*, having large wrinkled leaves, downy beneath. The whitish flowers are borne in October and November, consequently it will not ripen its excellent, pale orange-red fruit in our northern States, neither will it endure the rigors of our northern winters. There is a variegated leaved variety, which is exceedingly ornamental.

Ery'simum. Hedge Mustard. From *eryo*, to draw; it is considered a powerful cure for sore throat; it is also said to draw and produce blisters. Nat. Ord. *Cruciferæ.*

An extensive genus, mostly biennials. All of but little merit. One or two cultivated species of hardy annuals make rather effective clumps in the border. *E. Arkansanum*, the western Wall-flower, grows about two feet high, the stem being crowded with bright orange yellow flowers as large as those of the Wall-flower. Propagated by seed.

Erythe'a. A small genus of green-house palms from southern California, with fan-shaped, plicate, filiferous leaves much resembling the *Latania*; excellent for lawn decoration or for cool-house culture. *E. edulis*, forms a handsome tree with a slender trunk thirty or more feet high. Each tree bears one to four panicles, blossoming late in March; the fruit clusters are said to weigh forty to fifty pounds. Syn. *Brahea edulis.*

Erythræ'a. Centaury. From *erythros*, red; the color of the flowers of some of the species. Nat. Ord. *Gentianaceæ.*

A somewhat extensive genus of biennials and annuals. The latter are of easy culture, and produce freely small pink flowers. Seed should be sown in autumn in the open border. The biennials require the protection of the frame, which their merits do not deserve. The annuals are natives of Europe, and have been long known in the garden.

Erythri'na. Coral-tree. From *erythros*, red; the color of the flowers. Nat. Ord. *Leguminosæ.*

A genus of ornamental flowering green-house shrubs, commonly known as Coral-trees, found pretty generally distributed throughout the tropics of both hemispheres. They all produce scarlet or crimson pea-shaped flowers in pairs at the axils of the leaves. *E. Crista-galli* and *laurifolia*, natives of Brazil, succeed well planted out in a warm situation in the open border, producing flowers in the greatest abundance; being rank growers, they require considerable room. As a shrub for the lawn they have few, if any, superiors, their showy flowers contrasting finely with their bright glossy foliage. *E. Hendersonii*, a variety of recent introduction, is one of the very finest flowers, a bright scarlet, smaller than the other species, but produced in greater abundance. As it flowers earlier it seeds freely, so that it can be grown as an annual plant. The only care required is to take the plants up, after the tops are

killed by frost, and keep them through the winter in a warm dry room, or in the cellar, covering the roots well with dry sand. In spring cut well back before planting out. They are readily propagated by cuttings of the young shoots, or from seed which, sown in boxes about the first of January, will make flowering plants the coming summer.

Erythrolæ'na. Mexican Thistle. From *erythros*, red, and *læna*, a cloak; referring to the scarlet flowers. Nat. Ord. *Compositæ*.

E. conspicua, the only species, is the prettiest of all the Thistles. It is a tall plant, growing from eight to ten feet high; the leaves, not unlike the common Thistle, are at the base of the plant, two feet long. The flower-heads, clustered at the ends of the branches, are about three inches long, and very handsome, scarlet and orange. Young plants are readily obtained from seed. Introduced in 1825.

Erythro'nium. Dog's-Tooth Violet. From *erythros*, red; referring to the color of the leaves and flowers of the species first discovered. Nat. Ord. *Liliaceæ*.

A genus of small growing bulbous-rooted plants. Most of the species are American, and are common in moist woods in most of the States. With but one exception the native varieties have large yellow flowers, borne singly on a slender scape six to nine inches high. *E. albidum*, a rare species found in Iowa and southward, has nearly white flowers, without the spots on the leaves common to the species. *E. dens-canis*, common in Europe, has purplish rose-colored flowers, with light rose-color within. Propagated by offsets.

Erythro'xylon. From *erythros*, red, and *xylon*, wood; the wood of the trees is red. Nat. Ord. *Erythroxylaceæ*.

Bushy shrubs, or low-growing trees, chiefly natives of tropical South America, and the West Indies. One of the species has a world-wide reputation. For the following account and description of it we are indebted to The Treasury of Botany: "*E. Coca* is the most interesting of the species, on account of its being extensively cultivated, and its leaves largely employed as a masticatory, under the name of Coca, by the inhabitants of countries on the Pacific side of South America. It is a shrub of six or eight feet high, somewhat resembling a Blackthorn bush. The Coca leaves are of a thin texture, but opaque, oval, tapering toward both extremities, their upper surface dark green, the lower paler and strongly marked with veins, of which two, in addition to the midrib, run parallel with the margin. Small white flowers are produced in little clusters upon the branches, in places where the leaves have fallen away, and stand upon little stalks about as long as themselves. The use of Coca in Peru is a custom of very great antiquity, and is said to have originated with the Incas. At the present day it is common throughout the greater part of Peru, Quito and New Grenada; and also on the banks of the Rio Negro, where it is known as Spadic. Coca forms an article of commerce among the Indians, and wherever they go they carry with them a bag of the carefully dried leaves, and also a little bottle-gourd filled with finely powdered lime, and having a wooden or metal needle attached to its stopper. Four times a day, whatever the nature of his occupation, whether employed in the mines, the fields, as a muleteer or domestic servant, the Indian resigns himself to the pleasures of Coca chewing, mixing the leaves with lime, or the ashes of *Cecropia*. When used in moderation Coca exerts a pleasurable influence upon the imagination, and induces a forgetfulness of all care. It is also a powerful stimulant of the nervous system, and, when under its influence, Indians are able to perform long and rapid journeys, and carry heavy loads, without requiring any other sustenance. But when taken in excess it produces intoxication, of a character resembling that of opium rather than alcohol, but not so violent, although the consequence of its prolonged use are quite as injurious, and very few of those who become slaves to the habit attain an old age. Spruce says that an Indian with a chew of Spadic in his cheek will go two or three days without food, and without feeling any desire to sleep." A preparation of Coca, under the name of "Coca Beef Tonic," is now being sold; but those who use it will do well to remember that it does not "make old bones."

Escallo'nia. Named after *Escallon*, a Spanish traveler. Nat. Ord. *Saxifragaceæ*.

Ornamental summer flowering shrubs from South America, suitable for shrubbery borders in our Southern States. They flourish vigorously near the sea, and can be used as hedge or shelter plants. The flowers vary from white to pink and deep red, and the undivided, usually serrated leaves are often glandular.

Escallonia'ceæ. This natural order is now placed by Bentham and Hooker, as a tribe of *Saxifragaceæ*.

Eschalot. See *Shallot*.

Eschscho'ltzia. Named after *Dr. Eschscholtz*, a botanist. Nat. Ord. *Papaveraceæ*.

Annual plants, with showy flowers, natives of California, on which account the first species introduced was called the California Poppy. The seeds should be sown in the open border as soon as they are ripe, as, if the sowing be delayed till spring, the plants frequently do not flower till the second year. Many showy garden varieties are now in cultivation, including double white, double yellow, and several others.

Espa'rto. The Spanish name of *Macrochloa tenacissima*, used for paper making, cordage, etc.

E'stragon. Tarragon. See *Artemisia Dracunculus*.

Etiolated. Deprived of color by being kept in the dark; blanched.

Euade'nia. From *eu*, well, and *aden*, a gland; in allusion to the appendix at the base of the stamens. Nat. Ord. *Capparidaceæ*.

E. eminens, the only species yet in cultivation, is a striking plant with "singularly handsome inflorescence, which resembles a candelabrum in its ramification, the yellow petals looking like pairs of gas jets on each branch." Introduced from west tropical Africa in 1880.

Eucaly'ptus. Gum Tree. From *eu*, well, and *kalypto*, to cover; the limb of the calyx covers the

flower before expansion, and afterward falls off in the shape of a lid or cover. Nat. Ord. *Myrtaceæ*.

An extensive genus of immense evergreen trees, of the Australian and Tasmanian forests. *E. globulus*, the Blue Gum Tree, has been extensively planted within the past few years in the Southern States and California, for the reputation it has of absorbing malaria. The tree is very ornamental, and furnishes timber of a superior quality. Its rapid growth excites the wonder and admiration of those already accustomed to the extraordinary development of the vegetable kingdom on the Pacific coast. It will be remembered that Australia sent to the World's Fair at London, in 1863, a plank from this tree 250 feet long. Young plants are readily obtained from seed or from cuttings. The species are not hardy in the United States north of the Carolinas.

Euchari'dium. From *eucharis*, agreeable; in allusion to the appearance of the plant. Nat. Ord. *Onagraceæ*.

A genus of pretty little annuals from California, allied to the Clarkias. They come into flower in six weeks after germination; are perfectly hardy, and are extremely showy when grown in masses. They succeed best in a rich, loamy soil; introduced in 1836.

Eu'charis. Lily of the Amazon. From *eucharis*, agreeable; alluding to the fragrant flowers. Nat. Ord. *Amaryllidaceæ*.

Of this genus there are five species in cultivation, all free-growing bulbous plants of rare beauty and delicious fragrance. They should be grown in the hot-house or a warm green-house. The flowers are produced in a truss of from four to eight, according to the strength of the bulb and manner of treatment, and are borne on a stem that lifts them well above the leaves. They are pure waxy white and of great substance. If asked for the plant producing the best white flowers for the hot-house, for the decoration of vases, or for any other purpose where white flowers are wanted, we should unhesitatingly recommend the Eucharis, as combining all the essentials of the perfect flower. From a general impression that they are difficult to manage, they are but little grown. As the plants are found growing by the sides of rivers, moisture and heat are of course essential to the development of their flowers. The ease with which they are now cultivated and the fact that a dozen or more large pots of it will furnish flowers nearly the whole year, make it invaluable in all collections of choice plants. The plants may be repotted at any time of the year, taking care not to damage the bulbs or roots, and removing as much of the old soil as possible. The soil should be composed of loam, leaf mould, sand, and well-rotted manure in equal proportions; and the pots liberally drained. While they are growing freely they should have plenty of water, and liquid manure twice a week. They should be syringed twice a day. The temperature of the house during winter should not fall below 70°, and they should have a good share of sunshine. If wanted to flower during the winter months, water should be used sparingly from August to October. The bulbs should be disturbed as little as possible, repotting when necessary, without division.

Side shoots may be taken off at any time and potted in small pots, and, if well managed, they will flower in a year. Green fly and thrips which are apt to trouble them, should then be sponged off or got rid of by smoking every alternate day for a week. The three species *E. grandiflora*, the largest and best, *E. Amazonica*, and *E. candida*, a small flowering species, are very beautiful, and all require the same general treatment. This plant was first introduced in 1864.

Euchla'ena Luxurians. (Syn. *Reeana.*) See *Teosinté*.

Eucni'de. Derivation of name not given. Nat. Ord. *Loasaceæ*.

E. bartonioides, the only species, is a native of Mexico, a tender annual, growing about one foot high, with bristly stems, and lobes, and denticulated leaves, and axillary, very large yellow flowers. It will thrive under the same treatment given tender annuals. Introduced 1849. Syn. *Mentzelia*.

Eucodo'nia. A genus of Mexican plants, now included under *Achimenes*. *E. grandiflora*, the species grown for its flowers, was also called *Mandirola lanata*.

Eu'comis. From *eukomes*, beautiful-haired; referring to the tufted crown of the flower-spike. Nat. Ord. *Liliaceæ*.

A genus of coarse-growing bulbs from the Cape of Good Hope, requiring green-house treatment, as they rest in summer. *E. bifolia*, one of the species, has only two leaves, lying flat on the ground, and a short raceme of pale green flowers. The only merit of the species is in the fragrance of the flowers. They grow with the most ordinary treatment, and are propagated by offsets; introduced in 1774.

Eucro'ma. A synonym for *Castilleja*.

Eucro'sia. From *eu*, beautiful, and *krossos*, a fringe; referring to the cup above the insertion of the stamens. Nat. Ord. *Amaryllidaceæ*.

A genus of green-house bulbs from South America, mostly from the western declivity of the Peruvian Andes. *E. bicolor*, the only species, has bright vermilion flowers, with a purple stripe on the outside of the petals. They are borne in a terminal cluster on a scape about one foot high. They should be grown in a warm green-house; in winter they require perfect rest. Propagated by offsets. Introduced in 1816.

Eucry'phia. From *eu*, well, and *kryphios*, covered; referring to the calyptra of the flower. Nat. Ord. *Hypericaceæ*.

A genus of three or four species of very handsome hardy or green-house evergreen shrubs of easy culture. *E. pinnatifida* has large white flowers, usually borne in pairs near the upper portion of the branches, and rich deep-green pinnate leaves. Introduced from Chili in 1880.

Euge'nia. Rose Apple. Named after *Prince Eugene* of Saxony. Nat. Ord. *Myrtaceæ*.

A genus of handsome shrubs, grown as fruit trees in the East Indies, but grown in English hot-houses for their splendid white flowers, which are produced freely; they are propagated by cuttings of the ripe wood. Recent botanists place here *E. Pimenta*, which produces the allspice of commerce. See *Pimenta*.

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Eula'lia. From *eu*, well, and *lalia*, speech; in reference to the high reputation of the plants. Nat. Ord. *Graminaceæ*.

We are indebted to the American Agriculturist for the following history and description of this genus: "One of the most beautiful of ornamental grasses is the variegated *Eulalia Japonica*, which was sent from Japan several years ago by Mr. Thomas Hogg. It was illustrated in 'Hearth and Home' in 1871, and a year or two later was placed in the trade. It is a robust perennial grass, forming, when well established, large clumps, with firm, but graceful, leaves, which are marked with alternate stripes of creamy-white and green, much after the manner of the old 'Ribbon or Striped Grass' of the gardens, and presenting quite as much variety in the striping. This is taller and more erect than that, and the leaves are longer and more robust. The flower stalks appear in September, and the plant at this time is from four to six feet high. The flower panicles are at first brownish, with erect branches, and not at all showy, but as the flowers open, the branches of the panicle curve over gracefully in a one-sided manner, and bear a strong resemblance in form to what is known as a 'Prince of Wales' feather;' each of the individual flowers, which are very numerous upon each branch of the cluster, has at its base a tuft of long, silky hairs, and these contribute greatly to the feathery lightness of the whole. When Mr. Hogg sent this, it was accompanied by another variety of the same grass, which did not survive the effects of the journey. Upon a second visit to Japan, he procured other plants of this last variety, which reached this country in good condition. This variety, which it is proposed to call *Eulalia Japonica, var. Zebrina*, the 'Zebra-striped Eulalia,' or Zebra Grass, in all that relates to form, habit, and its flowers, is quite like the other, but differs most essentially in the manner of its variegation. In the older variety the leaves, according to the usual manner of variegation in grasses, have the markings run lengthwise of the leaf, while in this Zebrina variety they run *crosswise*. The leaves present alternate bands of green and creamy white of varying width, but with the colors quite well defined, and producing a most singular effect. Japan is remarkable for the great number of plants with variegated foliage that it has contributed to our collections, but we have not seen any variegation that interested us so much as this peculiar grass. We have seen but one other plant with its variegation so singularly disposed, and that was also from the same country. In the quaint little garden attached to the Japanese Bazar at the Centennial Exhibition was a Bulrush (*Scirpus*), the cylindrical stems of which were marked transversely, though the markings were much less positive than in the grass in question. Aside from the ornamental effect of its peculiar transverse markings, this variety has great interest for us in a physiological or pathological point of view. It is claimed by some that all variegation of foliage, or at least that in which the green of the leaf is changed to white or yellow, is an indication of disease, and this view is strongly maintained in spite of the numerous instances in which the variegated plants are more vigorous and hardy than typical plain green

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ones of the same species. To those who hold this view—that variegation is due to disease—this Zebrina variety of Eulalia presents a difficult problem. As the circulation of the juices of the leaf must take place in a lengthwise direction, the nutriment for each green portion of the leaf must pass through one of the colored sections, and those who regard these white, or whitish, bands as marks of disease, will be puzzled to account for the occurrence of green sections of the leaf which, though placed directly between two 'diseased' portions, remain in perfect health throughout the whole season of growth." The Eulalias are perfectly hardy in this latitude, and are valuable acquisitions to the garden, not only for the grace and elegance of the foliage, but for the flowers as "dried grasses." They keep for years, presenting somewhat the appearance of an ostrich feather. Propagated by division or by seeds, which, however, do not produce variegated leaves.

Eulo'phia. From *eulophos*, handsome-crested; referring to the handsome lip, which is furrowed into elevated ridges. Nat. Ord. *Orchidaceæ*.

An extensive genus, consisting of both terrestrial and epiphytal orchids, natives of tropical Asia, Africa, and America, but occurring in the greatest numbers at the Cape of Good Hope. *E. Dregiana*, a native of the Cape, is of free habit, producing spikes of flowers which resemble little doves hanging by their beaks; the sepals and petals are chocolate color, and the lip white. They require the same treatment as the *Cypripedium*.

Euo'nymus. Burning Bush. Spindle-tree. From *eu*, well, and *onoma*, a name; literally, of good repute. Nat. Ord. *Celastraceæ*.

An extensive genus of low-growing trees and shrubs, mostly of an ornamental character. *E. atropurpureus*, a native species, is a valuable shrub for the border, on account of its handsome foliage, its abundance of purple flowers, and its copious crimson fruit in autumn. This species is what is commonly called Burning Bush, or Waahoo. It grows freely in almost any soil or situation, preferring a moist one. Japan has furnished several species with ornamental foliage, that are among our most useful plants for single specimens, for baskets, or window gardens. *E. radicans variegata* has leaves of green and white, is a rapid grower, and hardy south of New York. It is readily increased by cuttings. The Japan species are evergreen, and were first introduced in 1804.

Eupato'rium. Named after *Mithridates Eupator*, King of Pontus, who discovered one of the species to be an antidote against poison. Nat. Ord. *Compositæ*.

An extensive genus, consisting for the most part of native hardy herbaceous plants. A number of species are grown in the greenhouse for their flowers and are produced freely in winter; of these the species known in cultivation as *E. elegans*, *E. riparium*, and *E. Weinmannianum*, all very graceful plants with white flowers, are the most useful, and are grown in large quantities for early winter use. They are natives of South America, and are increased by cuttings. Of our native kinds, *E. ageratoides*, White Snake-

root, is the most valuable as a flowering plant. The flowers are pure white, borne in terminal clusters or heads. The plant grows about four feet high, is very branching, and prefers a thick shade. It flowers late in August, and is very showy for nearly a month. *E. perfoliatum*, Bone-set, has, outside of the "regular practice," considerable reputation as a tonic stimulant, and is often administered in the form of a tea, made from the leaves, in cases of intermittent fevers. They are readily increased by root division or from seeds.

Eupho'rbia. Milk-wort or Spurge. Named after *Euphorbus*, physician to the King of Mauritania. Nat. Ord *Euphorbiaceæ*.

This is an extensive and variable genus, including species with the aspect of trees or large shrubs, and through every gradation, downward to the humblest annual weeds, all of them remarkable for an acrid milky juice. Notwithstanding the extent and variety of the genus, there are comparatively few of its members in cultivation; the principal of them being *E. splendens*, *E. jacquiniflora (fulgens* or *prunifolia)* and *E. Bojeri*. These do best in the hot-house, and are well deserving attention for their rich red or crimson flowers, and amply repay the little trouble occasioned. These species are all much improved by frequent stopping, as it induces a more dense habit, and consequently a greater display of flowers. It is worthy of remark that the first flowers that expand in each season on *E. splendens* are in pairs, but those which follow are each time increased in duplicate ratio, so that those which open last are commonly as many as eight together. The other perennial species require to be treated in the manner of Cacti, and the remainder respectively as they belong to the hardy or tender classes of the annual, biennial, or perennial plants. *E. corollata*, a native species, is a free-flowering plant, and valuable for florist's use, or for cut-flowers. They are small, greenish white, in general appearance like the Forget-me-not. This species is readily propagated by root division. The French substitute the seeds of *E. lathyrus* for the English capers, which, if taken in quantity, prove highly deleterious. For *E. Poinsettei*, see *Poinsettia pulcherrima*.

Euphorbia'ceæ. A very large order of trees, shrubs, or herbs, usually abounding in milky juice. The species are found in all, except Arctic climates. They are generally acrid and poisonous. Some yield starch, and others oils and Caoutchouc. Castor Oil is obtained from the seeds of *Ricinus communis* and Croton Oil from *Croton Tiglium*. The seeds of *Jatropha Curcas*, the Physic Nut, are purgative. *Stillingia Sebifera*, is the Tallow Tree of China, the fatty matter being procured from the fruit. Dyes are supplied by *Crozophora tinctoria* and *Rottlera tinctoria*. African Oak or Teak is yielded by *Oldfieldia Africana*. Caoutchouc by *Siphonia elastica, S. lutea, S. brevifolia, S. Braziliensis*, and *S. Spruceana*; and the poisonous Manchineel by *Hippomane Mancinella*. *Janipha Manihot* or *Manihot utilissima* furnishes Cassava and Tapioca, which consist of starchy matter from its root. *Colliguaja odorifera* has peculiar jumping seeds, owing to their becoming the habitation of the larva of an insect. Box-wood is the product of *Buxus sempervirens*. There are other useful and curious species, some of which are cultivated for their beautiful flowers. There are 230 known genera and about 2,600 species. *Euphorbia, Phyllanthus, Croton, Jatropha, Siphonia Ricinus*, and *Poinsettia* are examples of the order.

Euphra'sia. Eyebright. From *euphraino*, to delight; fabled to cure blindness. Nat Ord. *Scrophulariaceæ*.

E. officinalis, Eyebright, is a little annual common in dry pastures and roadsides in this country and Europe. It seldom grows more than three or four inches in height, and often not more than one or two. From the frequent mention of the Euphrasia by the poets, it would appear to have been formerly held in high repute for its medical virtues, a view which is confirmed by all the old herbalists, who recommend its use both outwardly and inwardly for complaints of the eyes. It has no value as a flowering plant.

Eu'rya. From *eurys*, large; erroneously applied to the flowers, which are comparatively small. Nat. Ord. *Ternstromiaceæ*.

A genus of very ornamental half-hardy evergreen shrubs or low-growing trees, with white flowers borne in axillary clusters. They are natives of Japan, India, China and the Indian Archipelago. The variegated variety of *E. Japonica latifolia* is a most useful plant for decorative purposes, as it stands the dry heat of rooms or halls well, and its glossy variegated leaves contrast well with Palms or other fine-foliage plants.

Eu'ryale. *Euryale*, one of the Gorgons, represented with fierce, thorny locks; in allusion to the thorny nature of the plant. Nat. Ord. *Nymphaceæ*.

An annual stove aquatic. Before the introduction of the *Victoria regia* this was the noblest aquatic plant in cultivation. Its leaves are circular, about two feet in diameter, with prominent spiny veins. Flowers deep violet, opening in September. Introduced from the East Indies in 1809.

Eury'bia. From *euribies*, wide-spreading; referring to the roots. Nat. Ord. *Compositæ*.

A genus of evergreen trees and shrubs and a few herbaceous perennials. They are mostly tropical, natives of Tasmania, and New Zealand. *E. argophylla*, syn. *Aster argophyllus*, a Tasmanian species, is called by the natives the silver-leaved Musk tree. It is occasionally seen in green-houses, where it is cultivated for the musky odor of its leaves. Most of the species are noted for their ornamental foliage; they would be valuable for lawn planting in the Southern States.

Eury'cles. From *eurys*, broad, and *klas*, a branch; referring to the broad leaves or branch-like foot-stalks. Nat. Ord. *Amaryllidaceæ*.

A genus of strong-growing bulbs, found in the Eastern Archipelago and in New Holland. This genus was formerly included in Pancratium, from which it is distinguished by its broad, nearly heart-shaped leaves, and its flowers with a long cylindrical tube, with equal and regular petals. The flowers are borne in umbels, and are pure white. They are generally grown in the green-house, and must have complete rest during winter,

EULALIA ZEBRINA (ZEBRA GRASS).

ERYTHRONIUM DENS-CANIS (DOG'S-TOOTH VIOLET.)

EUCHARIS AMAZONICA.

EULALIA GRACILLIMA.

EUCHARIDIUM.

EXACUM AFFINE.

EUCALYPTUS.

FERULA.

EUPHORBIA HETEROPHYLLA.

FENZLIA DIANTHIFLORA.

EUPHORBIA VARIEGATA.

ERYNGIUM GIGANTEUM.

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but if planted out in May they will flower finely. Propagated by suckers, which should be taken off when a new growth commences in spring. First introduced in 1821.

Euryga'nia. Named after *Eurygania*, the wife of Œdipus. Nat. Ord. *Vaccinaceæ.*

A genus of about a dozen species of ornamental evergreen shrubs with pendant branches and bright-colored, generally red, flowers, allied to *Thibaudia.* All are natives of the Andes of South America.

Eusca'phis. From *eu*, well, and *skaphis*, a bowl: in allusion to the persistent, bowl-like calyx. Nat. Ord. *Sapindaceæ.*

A genus of two species of hardy glabrous shrubs, natives of Japan. *E. staphyleoides* has white or yellowish flowers, borne in terminal panicles, succeeded by red, bladdery fruit, remaining on the bush until winter. This plant is highly prized in its native country for its medicinal properties.

Eu'stoma. From *eustomos*, of beautiful countenance; referring to the corolla. Nat. Ord. *Gentianaceæ.*

A genus containing only two species, with bright purple or purplish-blue flowers, closely allied to *Lisianthus.* They are elegant little plants, found from Florida and Texas to Nebraska, and are readily increased by seeds.

Euta'xia. From *eutaxia*, modesty; referring to the delicate aspect of the flowers. Nat. Ord. *Leguminosæ.*

A genus of very pretty green-house shrubs, natives of Western Australia. They are chiefly low growing and bushy, with small heath-like leaves, and pure yellow pea-shaped flowers, produced in small axillary clusters. *E. myrtifolia* is a popular green-house plant, whose slender stems are often seen thickly covered in the spring and summer months with its bright yellow flowers. The species are increased by cuttings. Introduced in 1803.

Eute'rpe. After *Euterpe*, one of the nine Muses. Nat. Ord. *Palmaceæ.*

A genus of Palms of extremely graceful habit, natives of South America and the West Indies. With the exception of *E. montana*, from the latter country, all are too tall growing for the green-house. This species attains a height of about twenty feet, and has the base of the stem much swollen or bulged out. The leaf bud and the central portion of the upper stem are cooked as a vegetable or pickled by the natives, and is highly esteemed. Propagated by seed.

Euto'ca. From *eutokos*, fruitful; referring to the abundance of seeds. Nat. Ord. *Hydrophyllaceæ.*

A genus of hardy annuals, with blue, pink, or lilac flowers, mostly from California. A few species are found in Virginia, and south and west, but are not of sufficient merit to warrant their introduction into the garden. Those from California are free-flowering, and of the easiest culture. The seed should be sown as early in spring as possible.

Evening Flower. See *Hesperantha.*

Evening Glory. See *Ipomœa.*

Evening Primrose. See *Œnothera.*

Evergreens. A term applied to trees, shrubs, or other plants, that retain their foliage during winter.

EXO

Everlasting Flower. See *Helichrysum.*

Common American. *Gnaphalium polycephalum*, and *G. decurrens.*

Swan River. *Rhodanthe Manglesii.*

Yellow. *Helichrysum orientale* and *H. arenarium.*

Everlasting Pea. See *Lathyrus latifolius.*

Evolved. Unfolded.

Evo'lvulus. From *evolvo*, to roll out, the opposite to Convolvulus; referring to the plant not twining. Nat. Ord. *Convolvulaceæ.*

An extensive genus of annuals and perennials, mostly from the East Indies and South America, a few species being found in Florida. The flowers of these plants are extremely beautiful, mostly of a large size, and of various shades of blue and white. The annuals should be started in a hot-bed or green-house, and planted out as soon as the weather will permit, or they may be grown in pots and trained on a balloon frame. The perennials should be kept dry and dormant through the winter, and started in a brisk heat in spring. During summer they may be grown in the green-house, or in pots, and trained on a trellis, or other suitable place for a climbing plant. The perennials may be increased by cuttings of young shoots. First introduced in 1817.

E'xacum. This name was used by Pliny, and by him derived from *ex*, out, and *ago*, to drive; in allusion to its supposed expelling powers. Nat. Ord. *Gentianaceæ.*

Annual, or perennial herbs, with opposite sessile leaves, and showy blue, yellow or white flowers. This genus contains nearly twenty species, though they are not yet all in cultivation. *E. macranthum* from Ceylon, has rich blue-purple colored flowers, about two inches in diameter, with large bright yellow stamens. All the species are showy and deserving of cultivation. Propagated by seeds or cuttings.

Excoriate. Stripped of the bark or skin.

Excretion. Any superfluous matter thrown off by the living plant externally; the action by which a superabundance of secreted matter is rejected from a secreting vessel. Also the matter itself thus excreted; gum, resin, etc., are examples.

Excurrent. Projecting or running beyond the edge of anything; running out. When a stem remains always central, all the other parts being regularly disposed round it, as in the stem of a Fir Tree.

Exocho'rda. Pearl Bush. From *exo*, out of, and *chorde*, a cord; referring to the cords by which the seeds are suspended. Nat. Ord. *Rosaceæ.*

E. grandiflora, the only species yet in cultivation, is a beautiful hardy shrub from China, introduced a few years since, and as yet comparatively little known. It is in substance described in the late edition of the Treasury of Botany as being remarkable for the structure of its fruits, which consist of five small compressed bony carpels adhering round a central axis in a star-like manner. From the axis or growing point stand five erect placentary cords, which enter the carpels on their inner face near the top, suspending from the apex two thin seeds. These cords remain after the carpels have fallen, and have suggested

the name of the genus. It is a smooth shrub or dwarf tree, with alternate nearly lance-shaped entire leaves, the stems terminated by racemes of handsome white flowers, which appear in May and June, and are about an inch in diameter. They have a bell-shaped calyx with a five-parted border, five rounded petals, and fifteen to twenty stamens. The plant is also known as *Spiræa grandiflora*. It is a beautiful tall-growing shrub, worthy of a place on the lawn and in the shrubbery. It is still a rare plant in the United States, chiefly because it is difficult to propagate, and in consequence is not easy to get. It is propagated by seeds, layers, or suckers.

Exogens. A name given to one of the great classes of the vegetable kingdom, corresponding with the *Dicotyledons*. The name Exogen is from the Greek, and signifies *outward* and *to grow*, meaning growing outwardly, and has reference to the manner in which the woody circles are produced, viz., from the center outwardly toward the circumference. The age of an exogenous tree, especially in temperate climates, may be determined by counting the number of zones or circles in the woody stem, each circle marking one year's growth, and the last formed circle being external. The characters of the class are given under *Dicotyledons*, which see.

Exogo'nium. From *exo*, external; referring to the exserted stamens. Nat. Ord. *Convolvulaceæ*.

The few species that are included in this genus are closely allied to, and very nearly resemble the tuberous-rooted *Ipomœas*. They are desirable climbers, flowering freely nearly

the whole summer. During winter the tubers should be kept dry and free from frost. *E. purga*, a Mexican species, has beautiful salver-shaped, purplish flowers, and furnishes the true Jalap tubers of commerce. These are roundish, of variable size, the largest being about as large as an orange, and of a dark color. They owe their well-known purgative properties to their resinous ingredients. They can be rapidly increased by cuttings, or by division of tubers in spring, like the Dahlia.

Exosmose. That force which causes a viscid fluid lying on the outside of an organic membrane to attract watery fluid through it.

Exoste'mma. From *exo*, external, and *stemma*, a crown; referring to the exserted stamens. Nat. Ord. *Rubiaceæ*.

A genus of tropical trees or shrubs, valued more for the medicinal properties they possess, than for the beauty of their foliage or flowers. They are natives of the West Indies. One of the species, *E. Caribæum*, has become naturalized in southern Florida. The bark possesses the same active principle as that of the *Cinchona*.

Exotic. Plants that are brought from foreign countries. Not native.

Exserted. Where one part protrudes beyond another by which it is surrounded; as the stamens or styles beyond the mouth of some tubular corollas.

Eye. A term in gardening for a leaf-bud; also for the center or the central markings of a flower.

Eye-bright. See *Euphrasia*.

F.

Fa'ba. The old Latin name for the Bean, now included under *Vicia*, which see.

Fabaceæ. A sub-order of *Leguminosæ*.

Fabia'na. Named after *F. Fabiano*, a Spaniard. Nat. Ord. *Solanaceæ*.

A small genus of half-hardy evergreen, heath-like shrubs. *F. imbricata*, the best known species, is a neat evergreen shrub of compact habit, densely covered, during the spring months, with pure white tubular flowers. Propagated by seeds or from cuttings.

Fadye'nia. Named after *Dr. Fadyen*, author of a Flora of Jamaica. Nat. Ord. *Polypodiaceæ*.

F. prolifera, the only species, is a curious Fern, a native of the West Indies. It grows but a few inches in height; the fronds have netted veins, and are remarbable for the large size of the sori. It was introduced from Jamaica in 1843, and is occasionally found in choice collections. Propagated by spores.

Fæcula. The farinaceous matter which forms starch, etc.

Fage'lia. Named after *Fagel*, a botanist. Nat. Ord. *Leguminosæ*.

A genus of green-house evergreen, twining, herbaceous plants, found in South Africa and Abyssinia. The leaves somewhat resemble those of *Phaseolus*, but are smaller. Their flowers are pea-shaped, yellow, and borne on long axillary racemes. Young plants are obtained from seeds.

Fagopy'rum. Buckwheat. From *phago*, to eat, and *pyros*, wheat; seeds edible. Nat. Ord. *Polygonaceæ*.

F. esculentum, the only species worthy of notice, is our common buckwheat, which see.

Fa'gus. The Beech. From *phago*, to eat; in early ages the nuts of the Beech-tree were used as food. Nat. Ord. *Cupuliferæ*.

A small genus of hardy deciduous trees, remarkable for their graceful and symmetrical habit of growth, and their great size and beauty, which render them objects of admiration, whether in their native woods, or when planted on the lawn for shade. *F. ferruginea*, the American Beech, is one of the tallest and most majestic of our forest trees. It grows most abundantly in the Middle and Western States, though common east of the Alleghanies, attaining its greatest size on the banks of the Ohio, where the trees are frequently found 100 feet high, with a diameter from three to four feet; its foliage is superb, and its general appearance magnificent. The sexes are borne on different branches of the same tree. The

FAI

male flowers are borne in pendulous, globular heads, the female flowers are small, and of a greenish color. It is so abundant as often to constitute extensive forests, the finest of which grow on fertile, level, or gently sloping lands, with a humid surface. The European Beech, *F. sylvatica*, is almost identical with our native species. The Weeping Beech, *F. sylvatica pendula*, is one of the most curious and beautiful of lawn trees. The original tree stands in the park of Baron de Mau, at Beersel, Belgium. "The trunk is three and half to four feet in diameter, and grows in a twisted form to a height of twelve feet to fifteen feet, with an appearance of being pressed down by an immense weight. The branches cover an area nearly a 100 feet in diameter. Its history is curious. Some sixty years ago the baron's gardener was planting an avenue of Beech trees, and the baron, observing a very crooked specimen, directed to have it thrown out, but the gardener planted it in a corner of the grounds little visited, where it grew to be one of the most beautiful and singular freaks of sylvan nature."—*Scott.* The Purple-Leaved Beech, *F. purpurea*, now so popular for lawn decoration, is a sport from the common Beech, found in a German forest. The Copper-colored Beech, *F. cuprea*, is a subvariety of the Purple Beech. The Fern and Cut-leaved Beeches are very ornamental varieties, the leaves resembling the fronds of a Fern. There are varieties with variegated foliage. They are all varieties of *F. sylvatica.*

Fair Maids of France. *Ranunculus aconitifolius flore-pleno, Saxifraga granulata,* and *Achillea Ptarmica.*

Fairy Fingers. *Digitalis purpurea.*

Fairy Flax. *Linum catharticum.*

Fairy Lily. See *Zephyranthes.*

Fairy Rings. Green circles or parts of circles seen in pastures, and produced by the peculiar mode of growth of several species of Agarics and other Fungi.

Falcate, Falciform. Plane and curved in any degree, with parallel edges, like the blade of a sickle; as the pod of *Medicago falcata.*

False Acacia. The common Yellow Locust, *Robinia Pseudacacia.*

False Asphodel. A popular name of the genus *Tofieldia*, small flowering Liliaceous plants.

False Dragon-head. *Physostegia virginica.*

False Fox-Glove. *Gerardia flava.*

False Hellebore. See *Veratrum.*

False Honeysuckle. A popular name of our native *Azaleas.*

False Indigo. See *Amorpha.*

False Mistletoe. American Mistletoe. *Phoradendron flavescens.*

False Red Top. A popular name of *Poa serotina*, because of its resemblance to *Agrostis vulgaris*, the true Red Top Grass.

False Solomon's Seal. See *Smilacina.*

False Spikenard. See *Smilacina racemosa.*

Family. A synonym for "Order."

Fan Palm. See *Corypha.*

Farada'ya. Named in honor of *Michael Faraday*, the celebrated chemist. Nat. Ord. *Verbenaceæ.*

FEN

A small genus of tall climbing glabrous plants, with showy white flowers, borne in corymbose panicles, natives of Australia, Java, and the Pacific Islands. Several species have been introduced, but have not yet flowered in cultivation.

Farfu'gium grande. See *Ligularia.*

Farinaceous. Having the texture of flour, as the albumen of Wheat.

Farinose. Covered with a white, mealy substance, as the leaves of the Auricula, *Primula farinosa.*

Farkle-berry. A local name for one of the Cranberries, *Vaccinium arboreum.*

Fasciated. When a stem becomes much flattened, instead of retaining its usual cylindrical figure, as in the Cockscomb, the *Lilium monstrosum*, etc.

Fastigiate. Tapering to a narrow point, pyramidal; as where many like parts are parallel, and point upwards, as the branches of *Populus fastigiata.*

Fat Hen. A popular name for *Chenopodium album.*

Fa'tsia. Derived from the Japanese name of one of the species. Nat. Ord. *Araliaceæ.*

A genus consisting of a few evergreen shrubs, natives of Japan, China, and northwest America. It is well represented by the *Aralia Japonica* or *A. Sieboldii* of gardens, which is now *Fatsia Japonica*, and *Aralia papyrifera*, the Chinese Rice-paper plant, now *F. papyrifera*, both of which are very ornamental and useful decorative plants. Two variegated varieties of *F. Japonica*, one with white and the other with rich yellow markings, are highly prized for green-house and house decoration.

Feathered Columbine. *Thalictrum aquilegifolium.*

Feather Foil, or Water Violet. *Hottonia inflata.*

Feather Geranium. Jerusalem Oak. Popular names for *Chenopodium Botrys.*

Feather Grass. See *Stipa pennata.*

Feather-veined. Where the veins of a leaf spring from the mid-rib at an acute angle.

Fedia olitoria. A synonym for *Valerianella olitoria* (Corn Salad).

Fe'ea. In honor of *M. Fee*, Professor of Botany at Strasburg. Nat. Ord. *Polypodiaceæ.*

A small genus of interesting little Ferns found in Guiana and the West Indies. They require to be grown in a very warm, moist atmosphere.

Fennel. See *Fœniculum.*
Giant. See *Ferula.*

Fenugreek. See *Trigonella.*

Fe'nzlia. Named in honor of *Dr. Fenzl*, author of a monograph on *Alsinaceæ.* Nat. Ord. *Polemoniaceæ.*

A genus of beautiful dwarf California hardy annuals. They bear a profusion of delicate, rosy-tinted flowers, with yellow throat, surrounded with dark-colored dots. *F. dianthiflora* is a very dwarf and closely tufted species, keeping in flower the whole summer, making it desirable for small beds or edgings. It is also very pretty for window gardens. This genus is now by many botanists included under *Gilia.*

Fern. Adder's. *Polypodium vulgare.*
Adder's Tongue. *Ophioglossum vulgatum.*
American Grape. *Botrichium lunarioides.*
Australian Tree. *Dicksonia antartica.*
Beech. *Polypodium Phegopteris.*
Bird's-nest. *Thamnopteris nidus* (*Asplenium*).
Brake, or Bracken. *Pteris aquilina.*
Bristle. The genus *Trichomanes.*
Buckler. The genus *Lastrea.*
Chain. The genus *Woodwardia.*
Chignon. *Cibotium regale.*
Christmas Shield. *Aspidium acrostichoides.*
Cinnamon. *Osmunda cinnamomea.*
Climbing Snake's-tongue. *Lygodium scandens.*
Deer. *Lomaria spicant* (*Blechnum*).
Elk's Horn. *Platycerium alcicorne.*
Filmy. A name applied to those kinds which have pellucid or transparent fronds, as *Hymenophyllum, Todea* and *Trichomanes.*
Haresfoot. The genus *Davallia.*
Hartford. *Lygodium palmatum.*
Hart's-tongue. The genus *Scolopendrium.*
Japan Climbing. *Lygodium scandens.*
Japan Haresfoot. *Davallia Mariesii.*
Killarney. *Trichomanes radicans.*
Lady. *Athyrium Filix-fœmina.*
Maiden Hair. Many of the genus *Adiantum.*
Maiden Hair. American. *Adiantum pedatum.*
Moon. *Botrychium Lunaria.*
Oak. *Polypodium Dryopteris.*
Oregon Cliff-Brake. *Pellæa densa.*
Oregon Rock-Brake. *Allosorus achrostichoides.*
Parsley. *Allosorus* or *Cryptogramma crispus.*
Pod. *Ceratopteris thalictroides.*
Sensitive. *Onoclea sensibilis.*
Shield. The genus *Aspidium.*
Stag's Horn. *Platycerium grande* and other species.
Sweet. *Myrrhis odorata* and *Comptonia asplenifolia.*
Tree. Various species of *Dicksonia, Alsophila, Cyathea,* etc.
Virginian Rattlesnake. *Botrychium Virginicum.*
Walking-leaf. *Camptosorus rhizophyllus.*
Water. *Osmunda regalis.*

Fernery. See Wardian Case.

Ferns. From their extreme beauty and diversity as well as from their general adaptability in arrangements with flowering and ornamental-foliaged plants, Ferns, when well-grown are indispensable and possess peculiar attractions. As their management gets better understood, their popularity increases, and the now almost universal use of plants, and especially of cut fronds, intermixed in floral decorations, has led to the production of a few of the most suitable species in immense quantities. The earlier modern botanists knew little about ferns, and Linnæus, who is regarded as the father of modern botany, seems to have supposed that in one sense they had flowers as other plants had, the little brown dots on the back of the fronds being supposed to be seeds of the same character as ordinary flowering plants. During the last fifty or more years, many discoveries have been made about Ferns, most notably that these little dusty brown dots are not really seeds but little bud ferns. When they fall or are sown in damp places they open and form little flat green membranes, and in this membrane the real flowers appear, and all the processes common to flowering plants are carried out.

In scientific treatises on ferns, all these processes of fern-growth and their functions, are given different names from what they would have in other plants; thus the germinating green blade is called a prothallium, and the mass that would be the stamens in a flowering plant is the anthevidia, while the pistil is the archegonium. There is this difference, however, that while flowering plants after fertilization retain the germ, in what we call a seed, for some time before it grows, in the fern the germ commences at once to grow and make a little plant. This has some bearing on the raising of hybrid ferns. New varieties are obtained by sowing the spores of different forms of the same species together, for as in flowering plants it is only in case of very close relationship that intermixture is possible. Those who have experimented and observed closely, tell us that the chances of intermixture is not great, still this is the only way to get new varieties. By taking the spores from the crested portion of "Crested Ferns" the certainty of getting crested seedlings is much increased.

Raising Ferns from spores is a very interesting operation requiring considerable care and attention to accomplish successfully. They are best sown in pots or shallow pans that have been half filled with broken rubble, the remainder being filled to within half an inch of the top with a finely sifted compost of loam, peat and sand. As the fern spores are extremely minute the soil should be watered and allowed to drain before sowing as by watering afterwards the spores might be washed away. Scatter thinly over the surface, pieces of glass being placed over the tops of the pots which should then be stood in saucers of water thus obviating the necessity of watering overhead. They should be kept well shaded at all times, and when the spores are sufficiently grown to be visible as very minute plants, they should be taken up in small patches, and pricked off carefully, these in turn when they get established and fit to handle should be divided and potted off singly. The most popular species *Adiantums, Pteris,* etc., are raised from spores in immense quantities. Many others as *Nephrolepis, Davallia,* etc., that form several crowns or have creeping rhizomes are easily increased by division. A few species produce small bulbils along, or at the end of the frond, and these, if removed and placed on the soil eventually form plants.

Trunks of Tree Ferns are imported in large numbers, both from the West Indies and Australia, and a large proportion generally succeed. Young plants may be raised from spores, and such quick-growing species as *Dicksonia, Alsophila,* etc., soon make elegant plants for decorative purposes. Hardy Ferns succeed best when planted on rock-work or in a shady situation sheltered from high winds; as there is so much diversity both in their size and habit, particular attention should be directed to their arrangement, placing the evergreen and deciduous species at irregular intervals, so that the whole may be more or less furnished at all seasons.

Fero'nia. The Wood-apple or Elephant-apple of India, closely allied to the Orange. *F. elephantum,* the only species of this genus of

Rutaceæ, is common throughout India, Burmah, Ceylon and Java, and forms a large tree, yielding a hard heavy wood, of great strength, but not durable. The leaves have the odor of Anise, and the fruit is edible. Increased by cuttings of the ripe young wood. Introduced from Coromandel, in 1804.

Ferra'ria. Named after *Ferrari*, an Italian botanist. Nat. Ord. *Iridaceæ*.

A genus of dwarf bulbs from the Cape of Good Hope, producing very curious, oddly-colored flowers, perhaps more singular than beautiful. They are of easy culture, requiring to be kept dry during winter. They should be started in the green-house in February, in small pots and as soon as they commence growth, given plenty of air, sunlight, and water, and they will come into flower in April. They will grow finely in a cold frame if carefully protected from frost during winter, and are increased freely by offsets. Introduced in 1800.

Ferruginous. Iron-colored; rusty light brown, with a little mixture of red.

Fertile. Producing fruit. Also, capable of effecting the process of fertilization; or of producing perfect seeds, as the anthers when filled with pollen; fertilized.

Fertilization. The reproductive function by which the action of the pollen renders the ovule fertile.

Fertilizers. This word is generally used only in connection with commercial fertilizers, or concentrated fertilizers, though, of course, in its full significance it refers to any substance suitable for the food of plants. The best known fertilizers of commerce are Peruvian Guano and Bone Dust, though there are numbers of others, such as Fish Guano, Dry Blood Fertilizer, Blood and Bone Fertilizer, with the various brands of Superphosphates, all of more or less value for fertilizing purposes. It is useless to go over the list, and we will confine ourselves to the relative merits of pure Peruvian Guano and pure Bone Dust. Guano at $65 per ton we consider relatively equal in value to Bone Dust at $40 per ton, for in the lower priced article we find we have to increase the quantity to produce the same result. Whatever kind of concentrated fertilizer is used, we find it well repays the labor to prepare it in the following manner before it is used on the land: to every bushel of Guano or Bone Dust add three bushels of either leaf mould (from the woods), well pulverized dry muck, sweepings from a paved street, stable manure so rotted as to be like pulverized muck, or, if neither of these can be obtained, any loamy soil will do; but in every case the material to mix the fertilizers with must be fairly dry and never in a condition of mud; the meaning of the operation being, that the material used is to act as a temporary absorbent for the fertilizer. The compost must be thoroughly mixed, and if Guano is used, it being sometimes lumpy, it must be broken up to dust before being mixed with the absorbent. The main object of this operation is for the better separation and division of the fertilizer, so that, when applied to the soil, it can be more readily distributed. Our experiments have repeatedly shown that

this method of using concentrated fertilizers materially increases their value probably twenty per cent. The mixing should be done a few months previous to spring, and it should, after being mixed, be packed away in barrels, and kept in some dry shed or cellar until wanted for use. Thus mixed, it is particularly beneficial on lawns or other grass lands. The quantity of concentrated fertilizer to be used is often perplexing to beginners. We give the following as the best rules we know, all derived from our own practice in growing fruits, flowers, and vegetables: Taking Guano as a basis, we would recommend for all vegetables or fruit crops, if earliness and good quality are desired, the use of not less than 1,200 pounds per acre (an acre contains 4,840 square yards, and cultivators for private use can easily estimate from this the quantity they require for any area), mixed with two tons of either of the materials recommended. If Bone Dust is used, about one ton per acre should be used, mixed with three tons of soil or the other materials named. When used alone without being mixed with the absorbent, it should be sown on the soil after plowing or digging, about thick enough to just color the surface, or about as thick as sand or sawdust is sown on a floor, and then thoroughly harrowed in if plowed, or, if dug, chopped in with a rake. This quantity is used broadcast by sowing on the ground after plowing and deeply and thoroughly harrowing in, or, if in small gardens, forked in lightly with the prongs of a garden fork or long-toothed steel rake. When applied in hills or drills, from 100 to 300 pounds should be used to the acre, according to the distance of these apart, mixing with soil, etc., as already directed.

When well-rotted stable manure is procurable at a cost not to exceed $2 or $3 per ton, whether from horses or cows, it is preferable to any concentrated fertilizer. Rotted stable manure, to produce full crops, should be spread on the ground not less than three inches thick, and should be thoroughly mixed with the soil by plowing or spading. The refuse hops from breweries form an excellent fertilizer, at least one-half more valuable, bulk for bulk, than stable manure. Other excellent fertilizers are obtained from the scrapings or shavings from horn or whalebone manufactories. The best way to make these quickly available is to compost them with hot manure in the proportion of one ton of refuse horn or whalebone with fifteen tons of manure. The heated manure extracts the oil, which is intermingled with the whole.

The manure from the chicken or pigeon house is very valuable, and when composted as directed for Bone Dust and Guano, has at least one-third their value. Castor oil pomace is also valuable.

Ashes. The ashes of vegetable matter consist of such elements as are always required for their perfect maturity, and it is evident they must furnish one of the best saline manures which can be supplied for their growth; they contain in fact every element, and generally in the right proportions, for insuring a full and rapid growth. The annual exhaustion of salts from a large crop of grain, roots, or grass, is from 180 to 250 pounds per acre, and the aggregate of a few years will so

far impoverish the soil in one or more of the principles necessary to sustain a luxuriant vegetation that it will cease to yield remunerating returns. Ashes are among the best of fertilizers for Onions; a handful to the hill before corn is hoed will give good returns. They are also excellent for top dressing grass-land, and as there is no danger of their containing weed-seeds they are valuable for top dressing lawns. The quantity used should be about the same as bone dust, which see.

NITRATE OF SODA, and SULPHATE OF AMMONIA, are both powerful fertilizers, are used to a considerable extent, and are deemed especially valuable to grain crops. Nitrate of Soda cannot be kept too dry as it attracts moisture the same as common Salt does and may be applied at the rate of about two and one-half hundred weight to the acre as a top dressing in moist weather or just before rain. Owing to its nature it is more suited to hot dry soils than Sulphate of Ammonia, which, though not so quick in its action, is more lasting in its effects, and is often used as a supplementary top dressing to the former.

POUDRETTE is the name given to a commercial fertilizer, the composition of which is night soil and dried swamp muck or charcoal dust as an absorbent. It is sold at about $12 to $15 per ton, and at that price may be equal in value, if too much of the absorbing material is not used, to Bone Dust at $40 per ton.

SALT has little or no value as a fertilizer, except as a medium of absorbing moisture. For experience shows that soils impregnated by a saline are no more fertile than those inland out of the reach of such an atmosphere. See Manures.

Fe'rula. Giant Fennel. From *ferio*, to strike, the stems are used as rods. Nat. Ord. *Umbelliferæ*.

A genus of very showy, hardy herbaceous plants, relatives of southern Europe, northern Africa, and central and western Asia. They are admirable plants for growing near water, or on banks, or margins of lawns, where their deep green elegant foliage is shown to the best advantage. The two most showy species are *F. communis*, and *F. Tingitana*. They are propagated by seeds, or by divisions of the root.

Fescue Grass. See *Festuca*.

Festu'ca. A genus containing some of the best pasture grasses. *F. glauca* is a very handsome ornamental grass, which, though hardy, is very suitable for the green-house and the sitting-room.

Fetid Horehound. See *Ballota*.

Fetticus. See *Valerianella*.

Fever Bush. A local name of the *Lindera*; given for the supposed medicinal properties of the shrub.

Feverfew. See *Pyrethrum Parthenium*.

Fever Tree, or **Fever Gum-Tree.** *Eucalyptus globulus*.

Fever Weed. *Gerardia pedicularia*.

Fibre, Elementary. That thread which is turned round the interior of the tubes that are called spiral vessels, or of any similar kind of tissue.

Fibrous. Containing a great proportion of woody fibre, as the rind of a Cocoanut; composed of fibres.

Fica'ria. Fig-wort. From *ficus*, a fig; in reference to the fig-shaped little tubers of the root. Nat. Ord. *Ranunculaceæ*.

A hardy herbaceous perennial with bright yellow flowers, closely resembling the Ranunculus, to which it is allied, the only difference being in the shape of the petals. It is one of the earliest spring flowers in the English woods or waste places.

Ficoi'deaæ. A large natural order of small shrubs, under-shrubs, or herbs, containing over 400 species, natives chiefly of tropical and sub-tropical regions. *Tetragonia* (the New Zealand Spinach) and *Mesembryanthemum* are the best known genera; indeed, the order is called *Mesembryanthemaceæ* by some botanists.

Fi'cus. Fig-tree. The Fig-tree has nearly the same name in all the European languages, and is supposed to be derived from the Hebrew name *feg*. Nat. Ord. *Urticaceæ*.

A genus of trees, some of which require to be grown in the hot-house. It contains several valuable species, especially the India Rubber tree (*F. elastica*), and the Banyan tree (*F. Indica*); the foliage of all of them is very imposing, and their culture is of the easiest description, requiring heat and plenty of water in their growing season. *F. elastica*, if cultivated in a humid atmosphere, such as that of an Orchid-house, will emit roots from its stem and branches, and attach itself to any contiguous object, such as a wall, in the manner of an epiphyte. This is the India Rubber tree of commerce. It is much valued as a decorative plant for rooms. A very effective variety with golden-edged leaves has been lately introduced, the golden band about an inch wide, contrasting beautifully with the glossy green of the center of the leaf. *F. Parcelli* has bright-green serrated leaves, irregularly blotched with dark green and ivory white. It forms a very neat and ornamental decorative plant. *F. Carica*, the cultivated Fig, is supposed to be a native of Caria, in Asia. It has, however, been so long under cultivation throughout southern Europe that its nativity is lost sight of. The fruit can be grown here without artificial heat, an ordinary pit alone being sufficient protection in winter; or the plants can be laid down and covered up with six inches of soil in November and uncovered in April, and will thus withstand our severest northern winters. The Fig is generally hardy south of Washington. Propagated by cuttings or layers.

Fiddle-Wood. See *Citharexylum*.

Fig Marigold. See *Mesembryanthemum*.

Fig-Tree. The genus *Ficus*, which see.
Adam's. *Musa paradisiaca*.
Balsam, of the West Indies. Several species of *Clusia*.
Creeping. *Ficus stipulata*.
Devil's, or Infernal. *Argemone Mexicana*.
Mangrove. *Rhizophora Mangle*.
Sacred. *Ficus religiosa*.

Fig-wort. The genus *Scrophularia*; also *Ficaria*, which see.
Cape. *Phygelius capensis*.

Filamentose. Thready.

FIL

Filices. One of the principal groups of Cryptogams, commonly called Ferns, consisting of herbaceous or arborescent perennial, very rarely annual, plants, with fibrous roots, or creeping root-stalks. Those of an arborescent or tree habit have trunks varying from two or three to sixty or eighty feet in height, and formed of the consolidated bases of the fronds, surrounding a soft central mass of tissue. Many schemes have been proposed for the classification of Ferns, but that seems to be preferable which is based on the modifications of the vascular system in conjunction with the fructification. All Ferns may be referred to one of the groups *Ophioglossaceæ*, *Marattiaceæ*, or *Polypodiaceæ*, of which the first two, sometimes called pseudo-Ferns, are very limited, while the latter, containing the true Ferns, includes the greater portion of all the known species. There are about seventy-five genera, and about 2,500 species. The following are some of the principal and most extensive genera: *Adiantum*, *Asplenium*, *Aspidium*, *Polypodium*, and *Pteris*.

Filiform. Cylindrical and slender, like a thread.

Filipendulous. Where tuberous swellings are developed in the middle or at the extremities of filiform rootlets as in *Spiræa filipendula*.

Fimbriate. Fringed.

Fiorin or **Fiorin-Grass.** (Butter Grass.) *Agrostis stolonifera*.

Fir. A general name for various species of *Abies*, *Picea*, and *Pinus*.
Balm of Gilead, or Balsam. *Abies balsamea*.
Black Spruce. *Abies nigra*.
Douglas Spruce. *Abies* (*Pseudo-tsuga*) *Douglasii*.
Hemlock Spruce. *Tsuga Canadensis*.
Japan Silver. *Picea firma*.
Norway Spruce. *Abies excelsa*.
Parasol, or Umbrella. The genus *Sciadopitys*.
Pitch, or Siberian Silver. *Picea Pichta*.
Sacred Silver. *Pinus religiosa*.
Scotch. *Pinus sylvestris*.
Silver. *Picea pectinata*.

Fire Cracker Plant. See *Cuphea*.

Fire Pink. A local name of *Silene Virginica*.

Fire Tree. See *Nuytsia*.
Of Queensland. See *Stenocarpus*.

Fire-Weed. A name given to *Erechites hieracifolia*, because of its appearance on new grounds, when brush has been burned. It is a coarse worthless weed, though not apt to be troublesome.

Firming the Soil. See Sowing and Planting, Use of the Feet in.

Fish Bone Thistle. *Chamæpeuce Casabonæ*.

Fish Guano. See *Fertilizer*.

Fish-Tail Palm. See *Caryota*.

Fissus. Divided *half way* usually into a determinate number of segments. We say, *bifidus*, split in two, *trifidus*, in three, and so on; or *multifidus*, when the segments are very numerous.

Fistular, Fistulous. This is said of a cylindrical or terete body which is hollow, but closed at each end, as the leaves and stem of the Onion.

Fitto'nia. Named in honor of *E.* and *S. M. Fitton*, authors of "Conversations on Botany," Nat. Ord. *Acanthaceæ*.

FLO

A genus of trailing perennials with brilliantly marked leaves, natives of Peru and requiring Stove-house treatment. They are excellent plants for the Wardian case and useful also for planting on the surface of pots or tubs in which large plants or other decorative plants are grown, and also for forming narrow borders to the walks in heated structures. *F. argyroneura*, has oval leaves of a vivid green, traversed by a net-work of pure white veins; other species have the midrib and veins deep red or carmine. They are easily increased by cuttings. Syn. *Gymnostachyum*.

Five Fingers. See *Potentilla*.

Flabelliform. Fan-shaped.

Flacourtia. Named after *Etienne de Flacourt*, a botanist and director of the French East India Company in 1648. The typical genus of *Flacourtiaceæ*, comprising a few species of fruit-bearing, thorny trees or shrubs, natives of tropical Asia, Africa, and America. The fruits of several of the species are used in India, and have a pleasant sub-acid flavor, when perfectly ripe, but the unripe fruit is exceedingly astringent. The young shoots and leaves of *F. cataphracta* are used medicinally by the native Indian doctors as a cure for diarrhœa. The species are rarely seen in cultivation.

Flacourtiaceæ. (Bixaceæ.) A natural order of shrubs or small trees, with alternate leaves, often marked with transparent dots. They are natives, principally, of the East and West Indies; a few species are found at the Cape of Good Hope, and one or two in New Zealand. Some of the plants yield edible fruits, others are bitter and astringent. The order includes about twenty-five genera and 150 species.

Flag. A general name for the genus *Iris*.
Yellow, or Water. *Iris Pseudo-acorus*.

Flagelliform. Flexible, narrow, and tapering, like the thong of a whip, as the runners of many plants.

Flame Flower. One of the popular names of *Tritoma*.

Flame Lily. See *Pyrolirion*.

Flame Tree, or Tree of Fire. See *Nuytsia*.

Flamingo Plant. Popular name of *Anthurium Scherzerianum*.

Flavescent. A pure pale yellow.

Flax. See *Linum*.
New Zealand, or Flax Lily. *Phormium tenax*.

Fleabane. See *Erigeron*.

Fleur-de-Luce. See *Iris*.

Flexuose. Zig-zag; having a wavy direction, gently bending alternately inward and outward.

Floating Heart. See *Limnanthemum*.

Floccose. Covered with little tufts of hair, like wool.

Flora. (The goddess of flowers.) The aggregate of all the species of plants inhabiting a particular country.

Floral. Of or belonging to the flower.

Floral Envelopes. The calyx and corolla, one or both.

Florets. When many small flowers are collected in clusters or heads, each flower is called a floret. The florets of the *disk* are those which

occupy the center of the head of a Composite; while florets of the *ray* occupy the circumference.

Florida Bean. See *Entada.*

Florida Moss. See *Tillandsia.*

Florists' Flowers. These are defined as, "Flowers which, by their beauty, or fragrance, power to produce permanent varieties, and facility of cultivation, are so largely in demand as to render them especially worthy of cultivation as an article of commerce." The term is most generally applied to that large section of green-house and hardy plants, which have originally descended from a limited number of species, but which, either by cultivation, careful selection, or systematic hybridization the "Florist," has caused to "break" from the original species into varieties much superior to the original, it may be in the habit of the plant or variety of color and form of the flower. The variety of plants included among Florists' flowers, is annually extending, as genera that have hitherto been neglected are being brought under the same influences with a view of obtaining similar results. Perfection in habit of plant, and in form of flower, with distinct coloring, are points always aimed at and only those flowers which are most desirable in these respects, should be used for hybridizing or seeding purposes. Seeds having a tendency to produce varieties of an inferior quality, it is necessary to perpetuate those good sorts already secured, by cuttings or offsets, as the case may be; the advantages of the improvements effected are thus available for all, in the select varieties now in general cultivation, as well as those now annually distributed. Among the best known examples of the Florist's success are the *Auricula, Chrysanthemum, Carnation, Dahlia, Fuchsia, Gladiolus, Pelargonium,* both show and Zonal, *Tulip, Hyacinth, Verbena, Rose,* etc.

Flower. That assemblage of organs in a plant, of which the stamens or pistils, or both, form part.

Flower Border. See *Border.*

Flower-de-Luce. See *Iris.*

Flower Fence. See *Poinciana.*

Flower of the Holy Spirit. See *Peristeria.*

Flowering Ash. See *Ornus.*

Flowering Fern. See *Osmunda.*

Flowering Grass. *Anomatheca cruenta.*

Flowering Rush. See *Butomus.*

Flues. Single and double. See *Heating.*

Fluitans. Floating on the surface of water.

Fluvial, Fluviatile. Of or belonging to the water.

Fly Honeysuckle. *Lonicera Xylosteum.*

Fly Orchis. *Ophrys muscifera.*

Fly Poison. *Amianthium muscætoxicum.*

Fly-Trap. American. *Apocynum androsæmifolium.*
Venus's. *Dionæa muscipula.*

Fœni'culum. Fennel. The old Latin name. Nat. Ord. *Umbelliferæ.*
F. vulgare. the common Fennel, is a native of southern Europe and western Asia, and is usually found on dry soils near the sea.

It is an aromatic plant of perennial duration, and is propagated both by offsets, division of the root, and by seed. *F. dulce,* the Sweet Fennel, is generally considered a variety of the preceding; but it differs in being a smaller plant, producing larger seeds, and in its flowering earlier. The leaves are used in sauces and for garnishing, and the seeds are employed in confectionary and for flavoring liquors.

Foliaceous. Having the form of leaves.

Foliage Plants. A popular term, though an incorrect one, given to distinguish such plants as are used for decorative purposes for the beauty of their foliage rather than for the beauty of their flowers. It is more particularly used for such plants as are used for massing in color; for example, the *Achyranthes, Centaureas* (Dusty Millers), *Pyrethrum aureum* (Golden Feather), *Coleus,* and plants of that class used in "ribbon line" bedding, are called "foliage" plants; though, among plants for inside decoration, the *Crotons, Dracœnas, Pandanads, Fancy Caladiums,* etc., are sometimes so named; but the proper designation for all such plants, whether used for outside or inside decoration, is "Ornamental-leaved Plants," or "Ornamental-foliaged Plants."

Foliate. Clothed with leaves.

Foliole. A leaflet; the secondary divisions of a compound leaf.

Foliose. Covered closely with leaves.

Follicle. An inflated seed-vessel; as that of the *Colutea.*

Fool's Parsley. See *Æthusa.*

Fontane'sia. A Syrian shrub of the Olive family, named in honor of *M. Desfontaines,* an eminent French botanist. It is an ornamental, hardy sub-evergreen shrub, resembling the common Privet, but with rough bark and graceful, slender drooping branches. Flowers creamy-yellow in axillary racemes. Introduced in 1787.

Forbidden Fruit. *Citrus Paradisi.*
Of London. A variety of the Shaddock. *Citrus decumana.*
Of Paris. The sweet skinned Orange; a variety of *Citrus Aurantium.*

Forcing Fruits, Flowers and Vegetables. As this operation has to be conducted throughout the winter and early spring months the greatest care is necessary in practice to obtain satisfactory results, more especially as they have to be procured under conditions that are unnatural to the plants at the time, in consequence of their having had an insufficient season of rest. The preparation of plants for forcing is one of the most important points, and only those that have the wood thoroughly ripened, should be chosen. In the early stages of the operation, heat should be applied very gradually, beginning with a little closer, warmer atmosphere than that allowed during the resting period. A temperature not exceeding 50° to 55° will suit a large number of plants to start with, but even this is too high for some subjects. Most plants will bear more heat after the buds swell and have commenced growing, than they will previously. In very early forcing all the sunshine and light possible should be admitted,

FESTUCA DURIUSCULA (HARD FESCUE).

FESTUCA RUBRA (RED FESCUE).

FESTUCA HETEROPHYLLA (VARIOUS LEAVED FESCUE).

FESTUCA PRATENSIS (MEADOW FESCUE).

FUCHSIA (DOUBLE).

FUCHSIAS (GROUP OF).

FICUS CARICA (FIG).

FRITILLARIA MELEAGRIS.

FUNKIA OVATA.

FRITILLARIA IMPERIALIS (CROWN IMPERIAL).

FREESIA REFRACTA ALBA.

as during the winter months the sun will seldom be strong enough to injure the tenderest foliage. As many flowers and vegetables are of no further use after having been forced, it is necessary to raise an annual supply of strong healthy roots for this purpose. Almost any position in a heated structure may be utilized for such, a succession crop being planted every two or three weeks as necessity may require, the old roots being destroyed as soon as the crop is over, and replaced by a new batch. In many establishments, small span roofed houses are used for forcing Cucumbers, Tomatoes, etc., a row of plants being planted on either side and trained upon trellises under the glass. Similar structures are also used for forwarding Cauliflower, Beets, Bush Beans, Dwarf Peas, Radishes, and other salading. The new Bush Lima Bean can also be successfully forced in this manner. The method of forcing the principal Fruits, Vegetables, etc., is described under their respective names. If raised benches are used, a succession of Asparagus, Sea-Kale, Rhubarb, Chicory, etc., may be profitably grown underneath them; the stems of those vegetables being much more tender and succulent when blanched, than when exposed to the light.

Forget-Me-Not. See *Myosotis.*

Forked. Separating into distinct branches more or less apart.

Forsy'thia. In honor of *William Forsyth*, royal gardener at Kensington, Eng. Author of "Observations on the Diseases of Trees." London, 1791. Nat. Ord. *Oleaceæ.*

A small genus of ornamental deciduous, hardy shrubs, introduced from the north of China in 1845. *F. viridissima* is one of the earliest of spring flowering shrubs, being completely covered in early spring with tufts of rather large, pendulous, bright yellow flowers, which grow two or three together from all parts of the rod-like branches. It is easily increased by cuttings or layers. *F. suspensa* is also a very graceful and free-flowering shrub with deep green foliage and bright yellow flowers, somewhat more drooping in its growth than the foregoing. It is frequently cultivated under the names of *F. Fortunei*, and *F. Sieboldi.*

Fothergi'lla. A genus of the Witch-hazels *Hamamelidaceæ*, named in honor of *Dr. John Fothergill*, of London, an eminent physician and botanist, 1712-1780. *F. alnifolia*, the only species, is a low shrub with oval or obovate leaves toothed at the summit. The flowers are white and sweet scented, borne in spicate terminal racemes, and appearing in April and May, rather before the leaves. It is found in low grounds from Virginia southward, and is increased by seeds or layers.

Fountain Plant. A popular name for *Amaranthus salicifolius.*

Fountains. These are often introduced in garden or conservatory decoration, and are represented in various forms and sizes, varying from specimens of the smallest description to an enormous display of water works, as shown in extensive public gardens and parks. The selection of an appropriate site for the Fountain, and one that is in keeping with surrounding objects, is one of the most important points in its introduction. The center of an inclosed formal or geometrically arranged flower garden could not be better occupied than with a fountain and circular basin, having a walk round it in connection with the other cross-walks. Intersecting points are the best in any case, on account of the means thereby supplied of utilizing the water from the basin. Either a single jet or an indefinite number, if desired, must be in connection with an elevated reservoir, or other source of supply, from which a force can be obtained, and they may be fixed so as to conduct the water in various directions, and cause it to disperse and descend in minute particles. The jets are best arranged amongst a pile of rockwork or large stones, that help to conceal them from view when the water is stopped. A Fountain has a cooling effect in a conservatory in summer; and when constructed in a prominent position, as in the center, it is invariably a source of attraction. In some of the most extensive and beautiful floral decorations, a small Fountain, with the flowers and leaves of various Nymphæas, etc., dropped in the basin underneath, forms an interesting and novel feature, and one that is generally admired.

Fountain Tree. A popular name for *Cedrus Deodara.*

Fourcro'ya. Named after *M. Fourcroy*, a celebrated chemist. Nat. Ord. *Amaryllidaceæ.*

A genus closely allied to *Agave.* Fifteen species are described, all natives of Mexico. *F. longæva* (long lived) throws up a magnificent flower stem forty feet high. It is branching and pyramidal, like the Yucca, though more graceful. The lower branches of the terminal pyramid are from ten to twelve feet long, and are covered with innumerable white flowers. From their great size they are rarely met in collections. Syn. *Furcræa.*

Four o'Clocks. A popular name for *Marvel of Peru.* See *Mirabilis.*

Fowl Meadow Grass. See *Poa serotina.*

Fox-Glove. See *Digitalis.*

Fox's Brush. *Centranthus ruber.*

Fox-Tail. *Lycopodium clavatum.*

Fox-Tail Grass. *Alopecurus pratensis.*

Fraga'ria. The Strawberry. From *fragrans*, fragrant; in reference to the perfumed fruit. Nat. Ord. *Rosaceæ.*

According to Sir Joseph Banks and others, the common name of Strawberry was given on account of straw having been laid between the plants to prevent the fruit from getting soiled in wet weather. There are several species of Strawberries, the principal of which are, *F. Virginiana*, the Virginian or Scarlet, the well-known native species; *F. grandiflora*, the Pine; *F. Chiliensis*, the Chilian; *F. vesca*, the Wood and Alpine; *F. elatior*, the Hautbois; *F. viridis*, the green; *F. Indica*, the Indian, not edible, but a pretty plant for hanging pots and baskets, its berries being very attractive. Like all the others, it is propagated by runners as well as seed. Previous to 1629, the date assigned to the introduction of the Scarlet Strawberry from Virginia, the Wood Strawberry is supposed to have been the kind generally gathered for sale in England. The varieties now grown are almost innumerable, especially in the United States, and they are

increasing every year. The improvements effected among them, in quality, size, and productiveness, are very remarkable indeed. Berries have been exhibited in New York that measured fully twelve inches in circumference. For cultivation, forcing, etc., see Strawberry.

Frames, Garden. See *Cold Frames.*

Franci'scea. Named in honor of *Francis*, Emperor of Austria. Nat. Ord. *Scrophulariaceæ.*

A genus of green-house evergreen shrubs, natives of Brazil. There are several in cultivation, most of them having very showy, salver-shaped, purple flowers. The roots, and, to some extent, the leaves, are employed in medicine. The tincture is bitter, purgative, and emetic, and is poisonous in large doses. From its peculiar properties it is called by the Portuguese, "Vegetable Mercury."

Franco'a. Named after *F. Franco*, a Spanish physician and botanist of the sixteenth century. Nat. Ord. *Saxifragaceæ.*

A small genus of tender herbaceous perennials, natives of Chili. They are found to succeed best when treated as tender annuals, as they can only be increased by seeds, which, if sown early in a hot-bed, make good flowering plants for autumn. The white or purple flowers are produced on long spikes, and are quite showy.

Francoa'ceæ. A natural order now placed as a tribe of *Saxifragaceæ.*

Frangipani-Shrub. *Plumieria alba*, and *P. rubra.*

Fra'ngula. A synonym of *Rhamnus.*

Franke'nia. See Heath. Named after *John Frankenius*, Professor of Botany at Upsal, who first enumerated the plants of Sweden, 1638. Nat. Ord. *Frankeniaceæ.*

A small genus of hardy and half-hardy evergreen trailers, growing in marshy places throughout Europe and the Canary Islands. Though very pretty, they have received but little attention from florists. The very small pink flowers are produced in axillary clusters. Propagated by division.

Frankenia'ceæ. A small order of herbs or subshrubs, chiefly natives of north Africa and the south of Europe. They possess no properties of importance.

Frankincense, or Olibanum Tree. *Boswellia Carteri*, and other species.

Fra'sera. Named after *John Fraser*, an indefatigable collector in this country toward the close of the last century. Nat. Ord. *Gentianaceæ.*

F. Carolinensis, the best known species, is a tall-growing, showy herbaceous plant. The flowers are about one inch in diameter, of light greenish-yellow color, marked with small brown-purple dots. It is commonly known as American Columbo, and is common from southwest New York to Wisconsin and southward. Syn. *F. Walteri.*

Fraxine'lla. See *Dictamnus.*

Fra xinus. The Ash. From *phraxis*, a separation; in reference to the facility with which the wood splits. Nat. Ord. *Oleaceæ.*

This genus includes some of the most common forest trees throughout the United States.

They are also common in Europe, Asia, and in the north of Africa. The more common and important of the native species are the following: The White Ash, *F. Americana*, is a beautiful tree, with trunk perfectly straight, and usually undivided to the height of thirty to forty feet. Solitary trees are often very beautiful, being symmetrical and globular, with dense foliage of a dull bluish-green color. This species delights in a warm, rich soil, and is rarely found in its natural state in any other. The timber of this species is valuable in the mechanic arts, where strength and durability are required. The Black Ash, *F. sambucifolia*, is a tree of medium size, usually found in wet or swampy situations. It is of but little value as an ornamental tree, and the timber has little value except to split into rails for fencing. The other native species are of no special interest. The English Ash, *F. excelsior*, is almost identical with our White Ash. From it several varieties have originated; one of weeping habit, *F. excelsior pendula*, a very beautiful and desirable tree for the lawn. Some of the varieties with golden, and some with variegated foliage, are being extensively planted, and are strongly recommended for suburban grounds.

Free. Not adhering to anything else; not adnate to any other body.

Free'sia. Derivation of name not given. Nat. Ord. *Iridaceæ.*

A small genus of handsome bulbous plants from the Cape of Good Hope, introduced previously to 1815, at which time they were grown in English gardens, and included in the genus *Gladiolus.* The Garden says: "According to Mr. Baker, whose labors on the *Iris* have rendered their study comparatively easy, the genus Freesia has been included in Gladiolus and Tritonia, as well as having a goodly number of specific names. These are all now reduced to two species, viz., *Freesia refracta* and *F. Leichtlinii.* The former varies considerably, judging from the earlier illustrations of it, which, if correct, would seem to include *F. Leichtlinii. F. refracta* has pale yellow flowers, sometimes with a greenish, sometimes a purplish tint, while its variety, *F. r. alba*, has flowers of the purest white, with two orange-yellow flowers on the lower segments. Sometimes these blotches are absent." *F. refracta alba* is the only species much cultivated; this, from its pure white flowers, that are produced in the greatest abundance during the winter season, is a valuable plant to grow for cut flowers. The flowers are produced on slender stalks, just overtopping the foliage, and number from three to six in a loose cluster. They are tubular, thimble-shaped, about one and a half inches in length; their perfume is delicious, sufficiently powerful to be perceptible at a distance from the plant. They are extremely useful as cut flowers, for which the elegant manner in which they are borne on the stalks admirably adapts them. They can be easily grown in the ordinary green-house, the only care required being to have the bulbs well ripened before drying off, after flowering. It is best to put several bulbs in a pot or pan. If the latter is used, put eight or ten in an eight inch pan. They like a fibrous soil, moderately rich, and need considerable rest.

Bulbs that have flowered in January should go to rest in April, and remain dry until November. They increase rapidly by offsets, and can be grown freely from seed, which should be sown soon as ripe; bulbs from seed will flower the second year.

Fremo'ntia. Named in honor of *Major-General John C. Fremont*, who discovered it in the northern part of the Sierra Nevada. Nat. Ord. *Sterculiaceæ*.

F. Californica, the only species, is a deciduous shrub from four to ten feet high, somewhat resembling the ordinary Fig-tree. The flowers are very handsome, bright yellow, bell-shaped, and are produced on short, spur-like branches. Propagated by cuttings or from seed. Introduced in 1851.

French Bean. See *Bean*.

French Honeysuckle. See *Hedysarum*.

French Marigold. See *Tagetes*.

French Mulberry. *Callicarpa Americana*.

French Willow. *Epilobium angustifolium*.

Fresh-water Soldier. *Stratioides aloides*.

Freycine'tia. Named after *Admiral Freycinet*, a French circumnavigator. A genus of *Pandanaceæ*, consisting of climbing trees, natives of the Indian Archipelago, Norfolk Island, New Zealand, etc. The species have the habit of *Pandanus*, and require the same general treatment. Increased by offsets.

Fringed. The same as fimbriate.

Fringe-Flower. *Schizanthus retusus*.

Fringe-Tree. See *Chionanthus*.

Fritilla'ria. Fritillary, Guinea-hen Flower. From *fritillus*, a chess-board; referring to the checkered flowers of some species. Nat. Ord. *Liliaceæ*.

Showy bulbs for the border, mostly attaining a height of from two to three feet, though *F. meleagris* and its variations are dwarf. This species, and one or two others like it, have had much attention paid them by the continental florists, who have succeeded in obtaining many beautiful varieties by seed, and now these flowers occupy a prominent place in their catalogues. They delight in very rich soil, frequently dug and well pulverized previous to planting. The bulbs should be planted early in the autumn, covering them with about three inches of earth. In the blooming season, should the weather prove dry, the ground must be frequently well soaked with water, that the growth may be sufficiently vigorous, or the flowers of the following season will be deficient. When the stems begin to decay the bulbs should be taken up, but not dried to any extent, it being far preferable to preserve them till the following planting season in sand or light and partially dried earth. *F. imperialis* is the well-known Crown Imperial, a native of Persia, of which there are several varieties. They will be greatly benefitted by mulching with leaves to the depth of six inches, just before the ground freezes up. They can remain a number of years without taking up, and are propagated by division of the bulbs or by seeds, which, however, require from four to six years to become flowering bulbs.

Frog-bit. *Hydrocharis morsus-ranæ* and *Limnobium Spongia*.

Frondose. Covered with leaves; bearing a great number of leaves.

Fronds. The leaves of Palms and Ferns are improperly called fronds. A true frond is a combination of leaf and stem, as in many seaweeds and liverworts.

Frosted. Covered with glittering particles, as if fine dew had been congealed upon it.

Frost-Weed. *Erigeron Philadelphicus* and *Helianthemum Canadense*.

Frozen Plants, Treatment of. When by any mishap the plants, whether in parlor or green-house, become frozen, either at once remove them (taking care not to touch the leaves) to some place warm enough to be just above the point of freezing; or, if there are too many to do that, get up the fire as rapidly as possible, and raise the temperature. The usual advice is to sprinkle the leaves and shade the plants from the sun. We have never found either remedy of any avail with frozen plants, and the sprinkling is often a serious injury if done before the temperature is above the freezing point. In our experience with thousands of frozen plants, we have tried all manner of expedients, and found no better method than to get them out of the freezing atmosphere as quickly as possible; and we have also found that the damage is in proportion to the succulent condition of the plant and the intensity of the freezing. Just what degree of cold plants in any given condition can endure without injury, we are unable to state. Plants are often frozen so that the leaves hang down, but when thawed out are found to be not at all injured. At another time the same low temperature acting on the same kind of plants may kill them outright if they happen to be growing more thriftily and are full of sap. Much depends upon the temperature at which plants have been growing; for example, we find, if we have had a warm spell in fall when, for a week or so, the temperature has been at sixty-five or seventy degrees at night, with ten or fifteen degrees more in the open air, that a slight frost will kill or greatly injure such half-hardy plants as Carnations, Geraniums or monthly Roses; but should the weather be such as to gradually get colder, so that the temperature has been lowered twenty to twenty-five degrees, a slight frost then coming will do little or no injury to such plants. When the frost is penetrating into a green-house or room in which plants are kept, and the heating arrangements are inadequate to keep it out, the best thing to do is to cover the plants with paper (newspapers) or sheeting. Thus protected, most plants will be enabled to resist four or five degrees of frost. Paper is rather better than sheeting for this purpose.

Fructification. The parts of the flower, or, more properly, the fruit and its parts; the phenomena which attend the development of the fruit from its first appearance to maturity. The distribution or arrangement of the fruit itself on any plant.

Fruit. That part of a plant which consists of the ripened carpels and the parts adhering to them; the seed vessel with its ripe contents.

Fruticose, Frutescent. Shrubby.

Fu'chsia. Named after *Leonard Fuchs*, a celebrated German botanist. Nat. Ord. *Onagraceæ*.

The best history we have of this interesting genus is from the pen of the Rev. C. A. Johns, in the "Treasury of Botany." He says: "A plausible story has often been printed, which attributes the introduction of the *Fuchsia* into England to a sailor, whose wife or mother was induced to sell it to Mr. Lee, a nurseryman, who, in the course of the following summer, made a profit of 300 guineas by the transaction. This is said to have happened about the close of the last century. It was, however, a hundred years before this time that a monk named Father Plumier discovered the first specimen of the family, which he afterward dedicated to the memory of Leonard Fuchs. This first species was named *Fuchsia triphylla flore coccinea*, and a description of it is to be found in the works of Plumier, published in 1703. With the exception of *F. excorticata* and *F. procumbens*, which are natives of New Zealand, all the species belong to the central and southern regions of America, in shady, moist places, in forests, or on lofty mountains of Mexico, Peru and Chili. The number of distinct species at present known is more than fifty, which have been introduced from time to time since the beginning of the present century; but the varieties most prized by florists date only from the year 1837, when *F. fulgens* was introduced. The introduction of this species, and soon afterward of *F. corymbiflora*, *F. cordifolia* and *F. serratifolia*, gave to horticulturists the opportunity of hybridizing these long-flowered species with the globose kinds, and the result has been the annual appearance of varieties which, from a garden point of view have surpassed their predecessors, to be themselves eclipsed in their turn." The cultivation of the Fuchsia is quite simple. Stock plants should be started in the greenhouse in November or December, and cuttings taken off as soon as large enough, which will be in ten days or two weeks. In an ordinary propagating house they will be sufficiently rooted in two weeks to pot off; after which the growth is rapid, if given the four essential elements, viz., light, air, heat and water. They require to be re-potted often, never allowing them to get pot-bound if large showy plants are desired. By training up the leading shoot, and keeping it tied to a straight stick, the plant will throw out side shoots in the perfect order required for a graceful, symmetrical outline. Plants carefully grown in this manner will, by the first of July, fill a twelve-inch pot, which, if placed in a shady situation and liberally watered with liquid manure, will make a plant fully six feet high by autumn, and all the summer be completely covered with flowers.

Fugacious. Soon falling off, or perishing very rapidly.

Fuliginous. Dirty brown, verging upon black.

Fuller's Teazel. See *Dipsacus Fullonum.*

Fulvous. Tawny yellow or fox-colored.

Fuma'ria. Fumitory. From *fumos*, smoke; referring to the disagreeable smell of the plant. Nat. Ord. *Fumariaceæ.*

A genus of hardy annuals, mostly mere weeds. One or two, however, are very pretty climbers, ornamental when grown along hedge-rows, for their delicate foliage, and small, pinkish white flowers.

Fumaria'ceæ. A natural order of herbs with brittle stems, watery juice, alternate, cut, exstipulate leaves, and irregular, unsymmetrical flowers. They are chiefly natives of the temperate regions of the northern hemisphere, a few occur at the Cape of Good Hope. They possess a slight bitterness and acridity. There are eighteen known genera and about 160 species; *Fumaria*, *Dicentra* and *Corydalis* are examples of the order, which is now included by Bentham and Hooker, as a tribe of *Papaveraceæ.*

Fumigating. See *Insects.*

Fumitory. See *Fumaria.*
Climbing. *Adlumia cirrhosa.*

Function. The peculiar action induced by the agency of vitality upon any part of a living plant, when placed under certain influences.

Fundamental. Constituting the essential part of anything; in a plant, the axis and its appendages. Fundamental organs, the nutritive organs essential to the existence of the individual.

Funeral Cypress. A common name of *Cupressus funebris.*

Fungi. Extensive groups of singular plants, known as blights, blasts, mildews and mushrooms.

Funnel-shaped. A calyx or corolla, or other organ, in which the tube is obconical, gradually enlarging upward into the limb, so that the whole resembles a funnel, as in the Convolvulus or Morning Glory.

Fu'nkia. Day Lily. Plantain Lily. Named in honor of *Henry Funk*, a German cryptogamist. Nat. Ord. *Liliaceæ.*

A handsome genus of hardy herbaceous plants, with bundled fibrous roots, from Japan. It is nearly allied to *Hemerocallis*, and some of the species first introduced were included in that genus, which has caused considerable confusion in names. They are remarkable for their neat habit, the fine character of their foliage, and the delicious fragrance of the flowers of some of the species. *F. albo-marginata* and *F. Sieboldiana* have beautifully variegated foliage, green and white. As border plants they are very showy and attractive, and to mix with cut flowers for vases the foliage is invaluable. *F. subcordata*, or *Japonica*, the well-known white Day Lily, is the largest growing of the species. In rich soils they will, in a short time, make immense clumps, that flower freely in August. This species does best in partial shade. They are readily increased by division of the roots, which should be done in early spring. First introduced in 1790.

Furcate. Having long terminal lobes, like the prongs of a fork.

Furcræ'a. See *Fourcroya.*

Furfuraceous. Scurfy; covered with soft scales, which are easily displaced.

Furrowed. Marked by longitudinal channels, as the stem of the Parsnip.

Fuscous. Brown, with a grayish or blackish tinge.

Furze. See *Ulex.*

Fusiform. Spindle-shaped; thick, tapering to each end, like the root of a long Radish. Sometimes conical roots are called fusiform.

G.

GAG

Ga'gea. Named after *Sir Thomas Gage*, a botanical amateur. Nat. Ord. *Liliaceæ*.

A genus of hardy little yellow-flowering bulbs, allied to the Tulip. The species are natives of Europe, temperate Asia and northern Africa. The flowers, which are large for the size of the plant, are produced in umbels on stems not more than four inches high. They flower about the same time as the Crocus, should occupy similar places in the garden, and are propagated by offsets. Introduced in 1759.

Ga'hnia. Named after *H. Gahn*, a Swedish botanist. Nat. Ord. *Cyperaceæ*.

A genus of about twenty species of greenhouse perennial herbs, natives of Australia, New Zealand, China, and the South Pacific Islands. *G. aspera*, is a very ornamental plant of Arundo-like habit, with bright green, channelled, wavy, lanceolate leaves. Introduced from Fiji in 1887.

Gailla'rdia. Named after *M. Gaillard de Marentonneau*, a French patron of botany. Nat. Ord. *Compositæ*.

A genus of beautiful half-hardy annuals, natives of South Carolina and southward. They are exceedingly showy, and well adapted for garden decoration. The seed germinates slowly, and in order to get plants to flower the whole summer it should be sown in the green-house in February. The plants may be put out in the open border when all danger from frost is over. Cuttings may be made in the fall and grown on in the green-house during the winter. *G. Richardsoni*, a species of late introduction, is a hardy perennial, propagated by root division.

Galactode'ndron. Cow-tree. A synonym for *Brosimum Galactodendron*, which see.

Gala'nthus. Snow-drop. From *gala*, milk, and *anthos*, flower; referring to the color of the flowers. Nat. Ord. *Amaryllidaceæ*.

C. nivalis, the common Snow-drop, for its poetical associations as the ever-welcome harbinger of spring, is universally cultivated, and by potting and very gentle forcing may be made an interesting ornament to the green-house in mid-winter. Snow-drops are well known and general favorites on account of the modest beauty displayed by their flowers at the early season in which they appear. *G. Elwesii* from Asia Minor, and *G. plicatus* from the Crimea are larger flowered species though still rare in gardens. A very distinct and much admired double form of *G. nivalis*, is also largely cultivated. When once planted it is best to let them take care of themselves, as if planted where the soil is suitable and left alone, they increase rapidly and annually appear in flower suddenly with the earliest approach of spring.

Ga'lax. From *gala*, milk; referring to the milk-white flowers. Nat. Ord. *Diapensiaceæ*.

G. aphylla, is a beautiful little native plant, with pure white flowers, particularly suitable for growing on a rockwork. It will succeed best in a cool damp place.

GAL

Gala'xia. From *galaktos*, milk; referring to the juice. Nat. Ord. *Iridaceæ*.

A genus of dwarf, tender bulbs from the Cape of Good Hope. The flower stems are short, with a terminal cluster of narrow leaves and handsome funnel-shaped yellow or purple flowers. The bulbs may be planted out in early spring, like the Gladiolus, and given the same treatment during summer. They are increased by offsets and may be left in the ground during winter, if protected from frost. Introduced in 1799.

Galba'num. The name of an aromatic gum-resin issuing from the stems of *Ferula galbaniflua, F. rubricaulis*, etc.

Galea'ndra. From *galea*, a helmet, and *aner*, a stamen; referring to the crested male organ on the top of the column. Nat. Ord. *Orchidaceæ*.

A small genus of terrestrial Orchids, with pink, purple, or yellow flowers. They are from Central and South America, and require the same treatment as is recommended for the *Bletia*. Introduced in 1840.

Gale'ga. Goat's Rue. From *gala*, milk; referring to an old idea that the herbage was said to increase the milk of such animals as eat it. Nat. Ord. *Leguminosæ*.

A small genus of strong, robust, erect growing herbaceous perennials, with small pea-like flowers, mostly natives of the Mediterranean region, extending eastward into Persia. *G. orientalis*, one of the most showy species, has handsome light green leaves, and blue flowers, which are produced in June. It grows from three to four feet high; and is increased by seeds sown in spring. Introduced from the Levant in 1801.

Galeo'psis. Hemp-nettle. From *gale*, a weasel, and *opsis*, like; in allusion to the likeness of the flower to a weasel's snout. Nat. Ord. *Labiatæ*.

A genus of weedy plants, whose flowers are supposed to resemble the head of a weasel, and could with the same propriety be supposed to resemble that of most any other animal. They are common in most parts of this country; naturalized from Europe.

Gale Sweet. See *Myrica Gale*.

Ga'lium. Bedstraw, Cleavers. From *galo*, milk; referring to the flowers of *G. verum* having been used to curdle milk. Nat. Ord. *Rubiaceæ*.

A genus of interesting herbs, natives of Europe, but extensively naturalized in the United States. *G. aparine*, vulgarly known as Goose Grass, has a great reputation in the eclectic practice of medicine as a cure for gravel in the bladder, and is considered by them invaluable as a diuretic.

Galls. Excrescences of various kinds and forms produced in plants by the presence of the larvæ of different insects.

Galto'nia. Named in memory of *Francis Galton*, author of "A Narrative of an Explorer in South Africa." Nat. Ord. *Liliaceæ*.

A genus of hardy bulbs, natives of south Africa. They are well adapted for growing in clumps for lawn decoration. *G. candicans*, is best known in cultivation as *Hyacinthus candicans*, which see.

Gama Grass. See *Tripsacum*.

Gambier. See *Uncaria Gambier*.

Gamboge. A gum resin that is furnished by a number of trees in the East Indies. It was at one time chiefly obtained from *Xanthochymus*, a native of Ceylon.

Gamboge-tree. *Garcinia Morella, var. pedicillata.*

Gamole'pis. From *gamos*, joined, and *lepis*, a scale. Nat. Ord. *Compositæ*.

G. tagetes, the only described species, is a tender annual, with small yellow flowers, a native of the Cape of Good Hope. The flowers somewhat resemble those of the *Othonna*, to which it is allied.

Garci'nia. Mangosteen. Named after *Dr. L. Garcin*, a French botanist and traveler in the East. Nat. Ord. *Guttiferæ*.

A genus of tropical trees of medium size, highly esteemed for their delicious fruit, and for the valuable gums they furnish. The fruit of *G. Mangostana* is one of the most delicious that grows, and the tree upon which it is produced is one of the most graceful and beautiful anywhere to be met with. It is a native of Sumatra and the islands of the Eastern Archipelago. The stem rises to the height of about twenty feet; the branches come out in regular order, and give the head of the tree the form of a parabola; the leaves are about eight inches long, and four broad at the middle, of a beautiful green on the upper side, and a fine olive on the under. The flowers resemble that of a single rose, with some dark red petals. The fruit is round, about the size of an ordinary orange. The shell of the fruit, which is at first green, but changes to brown, marked with yellow spots, has some resemblance to that of the Pomegranate, but is thicker and softer, and the contents are more juicy. The flavor of the pulp is said to be that of the finest Grape and Strawberry united; but those who have tasted the fruit in perfection, and attempted to convey to others some idea of the impression that it had made on them, are not agreed as to what it resembles. Abel says that "he and his companions were anxious to carry with them some precise expression of its flavor; but after satisfying themselves that it partook of the Pine-apple and the Peach, they were obliged to confess that it had many other equally good, but utterly inexpressible flavors." The species may be grown and ripen fruit in the hot-house. They will bear fruit in two years from seed. Some of the species yield a gum resin, known as Gamboge, though not the true sort, but it is said to be nearly as good.

Garden Cress. See *Lepidium sativum*.

Gardener's Garters. A common name for *Phalaris arundinacea variegata;* applied also to *Arundo Donax variegata*.

Garde'nia. Named in compliment of *Alexander Garden, M. D.*, of Charleston, South Carolina,

a correspondent of Ellis and Linnæus. Nat. Ord. *Cinchonaceæ*.

A genus of splendid green-house shrubs, remarkable for the size, number and fragrance of their flowers, and the noble character of the plant. *G. florida* and *G. Fortunei* are natives of China. The former was introduced into the Cape of Good Hope, in 1754, whence it received its common name, Cape Jessamine. They are usually treated as green-house plants, but if kept moderately cool during winter, their season of rest, and planted out in spring they will flower freely during the early part of the summer. They may be taken up in autumn, potted, and kept under the table in the green-house during winter. They are readily increased by cuttings made from half ripened wood. The species, often cultivated under the name of *G. citriodora*, is now named *Mitriostigma axillare*, which see.

Garden Pink. The common name for *Dianthus plumarius*.

Garden Walks. See *Asphalt* and *Gas Lime*.

Gardo'quia. Named after *Gardoqui* a Spaniard, who greatly promoted the publication of the "Flora Peruviana." Nat. Ord. *Labiatæ*.

A genus of green-house, low growing shrubs, producing from the axils of the leaves bright scarlet or pink flowers. They thrive well with ordinary green-house culture. In order to make neat and compact plants they should be kept cut well back, or the plants will become straggling; they are readily increased by cuttings. Introduced in 1812 from Peru.

Garland Flower. A common name for *Hedychium*, the name is also applied to *Daphne cneorum*.

Garlic. *Allium sativum*. This plant belongs to the same genus as the Onion and the Leek. It is a perennial, found growing wild in the southern parts of Europe. It is commonly cultivated in almost every country, and has been highly esteemed from a very early period, not as an article of food, but as a medicine. It was introduced into the English gardens in 1548. Every part of the plant, but especially the root has a pungent, acrimonious taste, and a peculiar offensive odor, that is far more penetrating and diffusive than that of the Onion. So powerful is this principle, that when Garlic is applied externally, as to the feet, the smell is said to be observed in the breath and perspiration. The common field Garlic, *Allium vineale*, was supposed to have been brought into this country by the Welsh, it is now completely naturalized, and in many parts of the country is quite a nuisance. *A. Canadense*, or Wild Garlic, is indigenous, and common in moist meadows. This differs from the field Garlic in having flat leaves, but is equally to be dreaded.

Ga'rrya. Named after *Mr. Garry*, of the Hudson's Bay Company, who facilitated Mr. Douglass, its discoverer, in his botanical researches. Nat. Ord. *Cornaceæ*.

A genus of handsome evergreen shrubs, very similar in appearance to the *Viburnum*. They were discovered by Mr. Douglass in north-western California, in 1828, and were considered by him as among his most valuable discoveries. The species are common from California to Texas and southward, with a single one in the West Indies. *G. elliptica* is

a handsome shrub, with dark green leathery leaves, and catkins of yellowish green flowers in clusters near the tips of the branches, produced from November till February. It grows from five to ten feet high, and is very ornamental in winter.

Garrya'ceæ. A tribe of *Cornaceæ*.

Gas Lime. This is the refuse lime thrown out from the gas houses, to which has been ascribed great qualities, not only as a fertilizer but, at the same time, as an insect destroyer. We much doubt the last quality ascribed to it, and know that it is not only worthless as a fertilizer, but that its use, particularly when it has been used fresh, is most injurious to vegetation, and would therefore advise strongly against its use on land for any purpose. It is, however, an excellent material for garden walks. Mixed with its own bulk or even double its bulk of sifted ashes, covered with a slight sprinkling of brown sand or gravel, to deaden the color, well watered, and heavily rolled until it is quite solid, it makes a walk that if properly drained, will not be injured by frost, will last for years, and is doubly valuable, inasmuch that no weeds will grow on it.

Gas Plant. *Dictamnus Fraxinella.*

Gas Tar or **Coal Tar.** This has been used to a considerable extent as a preservative, on wood-work such as benches, gutters, posts, and other parts of green-house structures. We are inclined to believe it is of very little value for that purpose, unless for gutters or other outside wood-work, and then only if it is put on annually, so as to form a skin or coating to prevent the penetration of moisture. Its use inside is often fraught with danger, particularly whenever exposed to a high temperature, say 100 degrees, as a gas is evolved that is quickly destructive to plants. A not unusual blunder in putting hot-water pipes in the green-house or grapery is to paint them with coal tar; and many fall into this error every season, in spite of all the warnings given. When the hot-water pipes have been painted with coal tar, just as soon as the pipes are heated up by firing, gas is emitted most destructive to plants, which is seen in the showers of falling leaves and flowers, after a few hours of firing. When anyone has been unfortunate enough to fall into this blunder, there is no remedy but to take down the pipes and build strong fires under them sufficient to drive out every particle of the gas tar. We have seen every imaginable remedy tried, but all was of no avail; for the tar penetrates through the pores of the metal, and though the surface is scraped entirely clean, the gas is given out on the application of heat just as bad as if the surface had not been scraped. So that, as we have before said, there is no known remedy except the troublesome and expensive one of taking the pipes down, and burning the tar out of them, which is always effectual if properly done.

Gaste'ria. From *gaster*, a belly; alluding to the swollen base of the flowers. Nat. Ord. *Liliaceæ*.

A somewhat extensive genus of succulent green-house plants, from the Cape of Good Hope, allied to the *Aloe*, which they closely resemble, and requiring the same treatment. The flowers of most of the species are bright scarlet or red, and very showy.

Gastrolo'bium. From *gaster*, belly, and *lobos*, a pod; inflated seed-pod. Nat. Ord. *Leguminosæ*.

Handsome New Holland shrubs with bright yellow and orange-colored blossoms, requiring to have an airy situation in the green-house through the winter, and a shaded one out of doors in summer. Propagated by seeds or from cuttings. Introduced in 1840.

Gastrone'ma. From *gaster*, belly, and *nema*, a filament; in reference to the filaments seen below the points of insertion. Nat. Ord. *Amaryllidaceæ*.

A small genus of very pretty, but exceedingly rare bulbs, from south Africa, closely allied to *Cyrtanthus*. There are but two species, one with white and the other with rose-colored flowers. They are increased by offsets and will flower freely in the open ground in summer, if planted in early spring. When the foliage shows signs of ripening, take up the bulbs, and keep in a dry place, free from frost, during winter. Introduced in 1816.

Gaulthe'ria. Named after *Dr. Gaulthier*, of Quebec, Canada. Nat. Ord. *Ericaceæ*.

Of the several species of this genus of low evergreens, two are natives of this country, and perfectly hardy. *G. procumbens* is found throughout the Northern States, and universally known as Wintergreen. In some sections the berries are called Partridge Berries, in others Checker-berry, Deer-berry, Tea-berry, etc. Wintergreen oil is distilled from this plant. *G. nummularioides*, is an ornamental hardy evergreen, with flowers resembling those of Lily of the Valley, but frequently tinged with rosy pink, succeeded by bright scarlet fruit. It is an excellent basket plant, and was introduced from the Himalayas in 1884.

Gau'ra. From *gauros*, superb; in reference to the beautiful flowers of some of the species. Nat. Ord. *Onagraceæ*.

A genus of tender and half-hardy annuals, biennials and perennials, common in the Southern States, Mexico and South America. *G. Lindheimeri*, the only species in general cultivation, is a slender, branching, herbaceous plant, bearing its long spikes of white or pink flowers in great abundance throughout the summer. The profusion of its spikes of graceful flowers, makes it a valuable plant for garden decoration; and the flowers are very useful for bouquets or vases. It is a native of Texas, is propagated by cuttings or from seeds.

Gaza'nia. From *gaza*, richness; in reference to the large, gaudy flowers. Nat. Ord. *Compositæ*.

A genus of very showy, low-growing, tender herbaceous plants, from the Cape of Good Hope. The flowers are large, yellow, or deep orange color, with almost black centers, and open only in clear sunshiny weather. They are very ornamental for the green-house, are well adapted for out-of-door culture, and are propagated readily from cuttings. Introduced in 1812.

Gazanio'psis. From *Gazania*, and *opsis*, like; in allusion to the resemblance to *Gazania*. Nat. Ord. *Compositæ*.

G. stenophylla, the only species, a native of south Africa, has large flower-heads three inches across, bronzy-green outside, and the richest golden yellow inside. The leaves are deep green above and snowy-white underneath. The flowers have the same habit of closing in the after part of the day, as those of the *Gazania*.

Gaylussa'cia. Named in honor of *N. F. Gaylussac*, a celebrated French chemist. Nat. Ord. *Ericaceæ*.

Branching shrubs two to five feet high, common on woodlands and swamps. The Huckleberry is the fruit of several of the species; see Huckleberry.

Geisso'is. From *geisson*, house-tiling; the seeds are imbricated like the tiles of a house. Nat. Ord. *Saxifragaceæ*.

A small genus of evergreen trees, natives of New Caledonia, the Fiji Islands and Australia. *G. racemosa* is an interesting plant of moderate growth, with very distinct leafage that may be likened to that of a *Pavia*. The midribs and leaf-stalks are of a fine red color, and the blade of the leaves full deep green. Introduced from New Caledonia in 1851.

Geissome'ria. From *geisson*, a tile, and *meris*, a part; the imbricated bracts fall over each other, like tiles on a roof. Nat. Ord. *Acanthaceæ*.

Evergreen pubescent or glabrous shrubs, mostly natives of Brazil. *G. longiflora* the the best known species, has oval or oblong entire leaves, and terminal spikes of long, scarlet, tubular, velvety flowers. It is a splendid free-flowering plant, growing in any good compost, and is propagated by cuttings.

Geissorhi'za. Tile Root. From *geisson*, a tile, and *rhiza*, a root; referring to the dry coats which cover the fleshy roots, like tiles on a roof. Nat. Ord. *Iridaceæ*.

A small genus of south African bulbs, one species of which has been found in Abyssinia. They are all remarkable for having bulbs, or, more correctly, bulbo-tubers, covered with several crustaceous or scarious skins or tunics, which lie over each other like scales, or the tiles of a house, beginning from below. It is from this peculiarity that the plants take their English name of Tile Root. They have but four leaves, all of which spring from the root, and are narrow and bristly. The stems are simple or branched, producing one or two flowers each, resembling the Ixia, very showy, of various colors, white, yellow and blue predominating. They are properly green-house bulbs, but will succeed finely in a cold frame, and are increased by offsets. Introduced in 1795.

Gelasi'ne. From *gelasinos*, a smiling dimple; referring to the flowers of these pretty bulbs. Nat. Ord. *Iridaceæ*.

G. azurea, the only species, is a small bulb from the Rio Grande, producing two to four beautiful blue tulip-shaped flowers on a slender stalk, about one and a half feet high. Propagated by offsets, or from seed. Seedlings flower the second year. Introduced in 1838.

Gelse'mium. From *gelsemius*, an Italian name of the Jasmine; alluding to the simplicity of the flowers. Nat. Ord. *Loganiaceæ*.

A small genus of climbing shrubs, with opposite lance-shaped, shining leaves, and producing axillary clusters of showy yellow flowers, very fragrant. It is indigenous to North Carolina and southward, and is popularly known as *Carolina Jessamine*. It is increased by cuttings.

Geminate. Growing in pairs.

Genety'llis. A small genus of *Myrtaceæ*; now united with *Darwinia*, which see.

Geniculate. Where any part is bent abruptly, so as to form a decided angle, as the stems of many grasses.

Geni'pa. Genip-tree. A genus of tropical American trees of the Nat. Ord. *Rubiaceæ*.

Nearly allied to the Gardenia. The flowers are small, and produce a fruit about the size of an orange, greenish-white in color, and full of dark purple rather acrid juice. It is edible, and is called in the West India Islands "Genipap Fruit."

Geni'sta. From the Celtic *gen*, a small bush. Nat. Ord. *Leguminosæ*.

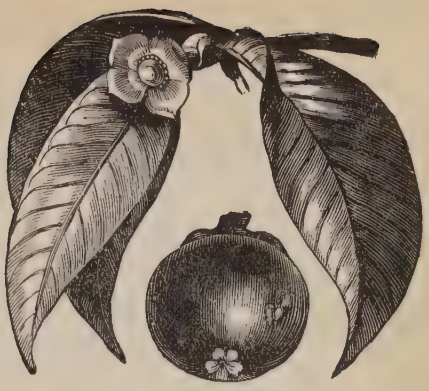
This genus consists of upward of seventy species, inhabiting Europe, north Africa, and western Asia. Many of the species are perfectly hardy. *G. tinctoria*, or Dyer's Greenweed, an escape from Europe, has taken possession of the dry waste places of southern New York and New England, with the persistency of a native. This species, of which there is a very pretty double-flowered form, yields a yellow dye. They are all very handsome, from the profusion of their bright yellow pea-flowers, and are of the easiest culture, The green-house kinds are propagated by cuttings or seeds.

Gentian. The genus *Gentiana*.
Closed Flowered. *Gentiana Andrewsii*.
Fringed. *Gentiana crinita*.
Soap-wort. *Gentiana Saponaria*.

Gentia'na. Gentian. Named after *Gentius*, King of Illyria, who first experienced the virtues of the plant. Nat. Ord. *Gentianaceæ*.

A large genus of herbaceous perennials, inhabiting all parts of the world, from the regions of perpetual snow upon the summits of the mountains of Europe, to the hottest sands of South America. They are very common in many parts of this country, some growing on dry hill-sides, others in moist and swampy grounds. All the plants of this genus are pretty, and many are extremely beautiful; the flowers take in the extremes of color: pink, blue, yellow and white, are all exhibited, the predominating color, however, being a beautiful blue. *G. Andrewsii* is common in moist, rich places in the Northern States, and is a very beautiful species; the flowers are of a deep, purplish blue, striped inside, the folds whitish. *G. crinita*, Fringed Gentian, is another quite common species in New England and westward. The four lobes of the corolla are fringed at the margin, an exceptional point of beauty of this species. The Alpine species are mostly low-growing, well adapted for rock-work or pot culture. The species are increased by seed, which should be sown as soon as ripe. The Fringed Gentian is partial to its native home. It rarely lives if transplanted, and coming into flower so late in the season, it is very seldom that it ripens seed. Were it readily increased it would be a very popular plant.

GAILLARDIA ARISTATA.



GARCINIA (MANGOSTEEN).

GENTIANA ACAULIS.

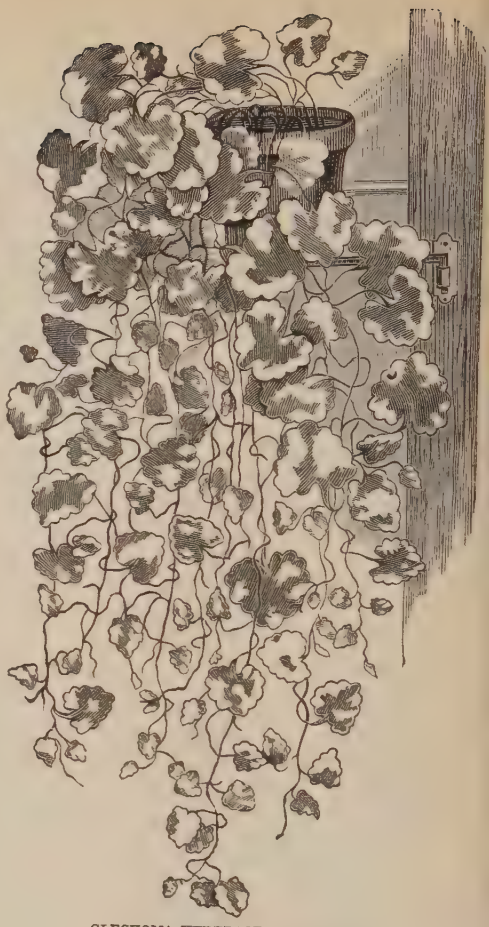
GENISTA CANARIENSIS.

GALANTHUS NIVALIS (SNOWDROP).

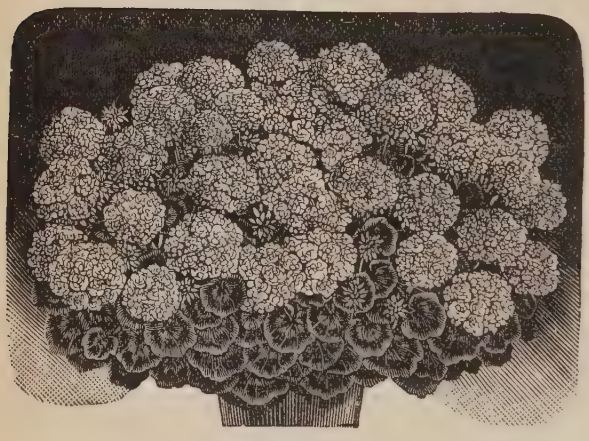
GAILLARDIA LORENZIANA (DOUBLE FL'G).

GESNERA.

GLAUCIUM.



GLECHOMA HEDERACEA VARIEGATA.



GERANIUM.

GEONOMA GRACILIS.

GILIA CAPITATA MAJOR.

GEN

Gentiana'ceæ. A natural order of herbs, rarely shrubs, with opposite, entire, exstipulate, usually ribbed leaves, and showy flowers. They are found in almost all parts of the world, some at high elevations, and others in hot tropical plains. They are generally bitter; some are narcotic. There are about seventy known genera and upward of 500 species. *Gentiana*, *Lisianthus*, *Menyanthes*, *Villarsia*, *Erythræa*, and *Chlora* are examples of the order.

Gentianella. *Gentiana acaulis.*

Genus. A family of plants agreeing in their flower and fruit; an assemblage of species possessing certain characters in common, by which they are distinguished from all others.

Geo'noma. From *geonomos*, skilled in agriculture; it was supposed that only a skillful gardener could increase these palms. Nat. Ord. *Palmaceæ.*

This genus includes something about forty species of Palms, the most of them without special interest. *G. gracilis* is a dwarf species of pendant habit, resembling somewhat some of the *Cocos*, and is very popular for decorative purposes. The species are of but little value in the useful arts, and are increased from seeds.

Gerania'ceæ. A natural order of herbs or shrubs with swollen joints, and opposite or alternate leaves, which are usually palmately veined and lobed, often stipulate. The plants are distributed over various parts of the world. The species of *Pelargonium* are abundant at the Cape of Good Hope. It is this genus that has furnished the beautiful varieties that ornament the green-house in winter and the garden in summer, one class of which is commonly known as Scarlet Geraniums. The species of *Geranium* and *Erodium* are mostly natives of Europe, North America, and northern Asia. There are about twenty genera and seven hundred and fifty species in the order, the principal part of which are natives of south Africa. *Geranium*, *Pelargonium*, *Erodium*, and *Tropæolum*, are examples of the order.

Gera'nium. Crane's bill. From *geranos*, a crane; referring to the beak-like torus, or projection beyond the seeds. Nat. Ord. *Geraniaceæ.*

A somewhat extensive genus of herbaceous plants, most of which are hardy. Two species are common to this country, and several of the species are classed with our native plants, having been naturalized from Europe. A few of the species produce handsome flowers, while most of them are mere weeds. The well-known Scarlet or Fish Geraniums of our gardens are properly Pelargoniums, and will be found under that head.

Gera'rdia. False Fox Glove. Named in honor of *John Gerard*, author of the famous "Herbal," 1597. Nat. Ord. *Scrophulariaceæ.*

A genus of hardy annuals and perennials, common in many of the States, particularly along the seacoast. The flowers are yellow and purple, and are produced in great abundance. The species being more or less root parasitic, are extremely difficult of cultivation, but spread rapidly where once introduced.

Germander. See *Teucrium.*

German Greens. See *Borecole.*

GES

German Ivy. A popular name of *Senecio Scandens.*

Germination. The first act of vegetation in a seed, commonly called "sprouting."

Geropo'gon. Old Man's Beard. From *geron*, old man, and *pogon*, a beard; referring to the hair-like pappus which crowns the calyx in this order. Nat. Ord. *Compositæ.*

The only species of this genus is a very curious annual plant. *G. glaber*, a native of Italy, having a smooth stem and leaves, and growing about a foot high. The flowers are flesh-colored, and expand in the form of a star only when the sun shines upon them. The seeds are very curious, and it is from them that the plant takes its English name. They should be sown in the open border in March or April, and the plants will flower in July and August. This genus is now included by some botanists with *Tragopogon.*

Gerrada'nthus. Named after *W. T. Gerrard*, a collector at Natal. Nat. Ord. *Cucurbitaceæ.*

A genus of tall glabrous climbers, natives of western and eastern tropical Africa. *G. tomentosus*, the only species known to cultivation is a stove perennial of great botanical interest. Mr. Wood, superintendent of the Natal Botanic Gardens, is recorded to have found on the top of and between large stones, tubers, one of which "measured six feet in circumference, and was nearly two feet thick, its surface was scarred, and from the centre arose a stem not more than three quarters of an inch in diameter, thickly covered with small, round tubercles, which ascended without a leaf to the top of trees fifty feet high. On turning over one of the tubers, it was found to have but one fibrous root about half an inch thick. * * * The natives do not appear to put the plant to any use."—"Botanical Magazine." It may be increased by seeds.

Gesne'ra. Named after *Conrad Gesner*, a celebrated botanist in Zurich. Nat. Ord. *Gesneraceæ.*

A beautiful and extensive genus of tuberous-rooted green-house plants from Mexico and South America. They are remarkable for the beauty of their foliage, which is singularly marked, and soft as velvet, and for their long spikes of brilliant-colored flowers, mostly scarlet and yellow. Some of them are singularly marked or spotted. One species, *G. Suttoni alba*, from Brazil, has pure white flowers. With a little care in regulating their season of rest, they can be brought into flower at any desired time. They require a light rich soil, a warm situation, but little sun, and plenty of water, which should not touch the foliage. They are easily propagated by cuttings of young shoots, or by cuttings of leaves with a bud at the base, division of the tubers, or from seeds. The latter is a very interesting and simple plan. The certainty that all your plants will be as good as the parents, and the uncertainty as to how good, or how strange they may be, furnish an additional stimulant to grow them in this way. The seed should be sown in March, in pans or boxes, in fine light compost, largely composed of sand, and placed in a warm, moist atmosphere. As soon as the seedlings are up, and show the second leaf, plant separately, an inch or so apart, in shallow boxes,

and from these put in small pots as they grow, and let them grow there for the summer. Allow them to go to rest in the autumn, and let them remain in the same pots during winter. As soon as they show signs of life in spring, repot in fresh soil, and many of them will come into flower during the summer. The first species were introduced in 1814.

Gesnera'ceæ. A natural order of herbs or shrubs, often growing from scaly tubers, with wrinkled, usually opposite leaves and showy flowers. They are natives of various parts of the world, but chiefly the warmer regions of America. The succulent roots are occasionally edible, and some of the species yield a dye. The leaves of some of them produce buds when laid on the soil, similar to Begonias of the Rex type. There are upward of eighty genera and nearly 300 species. *Gesnera*, *Gloxinia*, *Achimenes*, *Streptocarpus*, and *Cyrtandra* are examples.

Gethy'llis. From *getheo*, to rejoice; referring to the sweetness of the flowers. Nat. Ord. *Amaryllidaceæ*.

A small genus of the most diminutive of this noble family of plants. They are greenhouse bulbs from the Cape of Good Hope, producing small white, fragrant flowers in July, singly on a scape not more than six inches high, and are propagated by offsets. Introduced in 1780.

Ge'um. Avens. From *geyo*, to stimulate; the roots of some of them, and of allied species, have the same properties as Peruvian Bark. Nat. Ord. *Rosaceæ*.

A genus of hardy herbaceous perennials, containing some species of an ornamental character, well adapted for the shrubbery border. *G. montanum*, bright golden yellow, and *G. coccineum*, scarlet, are very showy. Propagated by seeds or by root division.

Gherkin. A small fruited variety of *Cucumis sativa*.

West Indian. The unripe fruits of *Cucumis Anguria*.

Giant Fennel. See *Ferula*.

Gibbous, Gibbose. More convex or swollen in one place than another.

Gi'lia. Named in honor of *P. S. Gil*, a Spanish botanist. Nat. Ord. *Polemoniaceæ*.

Handsome hardy annuals from California, with white, lilac, and rose-colored flowers. They are low-growing, and profuse bloomers, suitable for borders or rock-work. Seed should be sown in the fall, and the beds lightly covered with leaves. *Fenzlia*, *Ipomopsis*, and *Leptosiphon* are by some botanists included in this genus.

Gille'nia. Named after *A. Gillenius*, a German botanist. Nat. Ord. *Rosaceæ*.

A genus of two species, natives of the United States. *G. trifoliata* or Bowman's Root, is a hardy perennial with white or rose-colored flowers; it is often cultivated under the name of *Spiræa trifoliata*.

Gilliflower or **Gillyflower.** *Dianthus Caryophyllus*, also the genus *Matthiola*.

Gilliflower-Stock. See *Matthiola*.

Gills. The lamellæ or plates growing perpendicularly from the cap or pileus of an Agaric or Mushroom.

Ginger. See *Zingiber*.

Wild. See *Asarum Canadense*.

Gingerbread Tree. See *Hyphæne*.

Gi'nkgo. Maiden-hair Tree. The Japanese name. Nat. Ord. *Coniferæ*.

This singular tree is better known in cultivation under the name of *Salisburia*, which see.

Ginseng. See *Panax*.

Gipsies' Rose. *Scabiosa arvensis*.

Gipsy-Flower. *Cynoglossum officinale*.

Githa'go. A genus now included under *Lychnis*.

Glabrous. Smooth; without hair or other covering, as the Camellia leaf.

Gla'diolus. Sword Lily. The diminutive of *gladius*, a sword; referring to the sword-shaped leaves. Nat. Ord. *Iridaceæ*.

This extensive and well-known genus contains about ninety species, many of which are amongst the most popular of out-door summer and autumn-flowering so-called "bulbous" plants. They are found in central Europe, the Mediterranean region, western Asia, and Africa, but the most of the species are natives of southern Africa. They are remarkable for their ease of culture, grace of habit, and for the beauty and intense coloring of the flowers, varying from the most brilliant scarlet to pure white, from clear rose to pure yellow and bright purple. The habits of the species are as varied as their colors; some delicate and light, others strong and robust, with constitutions adapted to any climate excepting the most frigid. From these species some of the most remarkable hybrids have been produced. In no branch of floriculture has the skill, the zeal, and the perseverance of the hybridizer been so liberally rewarded. A class with almost unlimited numbers of varieties has been produced, that, for the size of flower, beauty in form, size and strength of plant, together with the enormous length of flower spike, are entirely unknown to the species. So popular have these hybrids become that the species are only to be found in botanical collections. It is a common mistake to call our many varieties hybrids, when in reality they are all, or nearly all, cross-breeds; and this is one of the most interesting features in Gladioli culture, that every cross between well-known varieties tends, in almost every case, to improve, not only the beauty of the flower, but the vigor of the plant. We wish now to remove, as far as possible, the prevalent erroneous idea, that it is a difficult task to raise new and choice varieties from seed. The only secret, the only mystery is, that one can, with so little trouble and expense, produce flowers that will give such intense satisfaction and pleasure. It is no more trouble to raise Gladioli from seed than it is to raise the most common vegetable. With the simplest garden culture, there is an almost absolute certainty of success. Prepare your bed in spring as for any hardy annual, sow your seed, and cover to the depth of one inch. Hoe as often as needed for other crops; keep them well weeded; take up the bulbs after a frost, or before, if they show signs of ripening; store them in a dry cellar, free from frost; plant them out again the next spring, and the ensuing summer very many of

them will flower. If the precaution is taken to sow the seed in a hot-bed, close the same upon the approach of a heavy rain, which they dislike exceedingly. Very nearly all the bulbs will be large enough to give their most perfect flowers the second year. The fact that the best rarely flower first, will tend to create in the amateur a warm and lively interest. A pertinent question is, how to obtain the best seed. Commence by making a careful selection of the best varieties in cultivation, keeping in view those of the best form, largest size, and of the most intense and positive colors; wherever they are marked or variegated, have the markings bold and distinct. Plant all in a bed so that they will not be more than one foot apart each way. Without further care you will get some good seed; but a better quality and much larger quantity will be obtained by crossing them in all sorts of ways, which is the most effectually done on a dry day, when there is but little air stirring. It is not necessary to cross-fertilize for good varieties, though it is a more certain way; yet very many of our best seedlings were accidentals. The Gladioli dislikes a stiff, clayey soil, but will thrive well in almost any other, its preference being for one of a moist, sandy nature, or light loam. They do best on what is termed sod-ground, with but little manure, and that well rotted. Successive plantings in the same ground should be avoided. Change the locality of the bed every year, so as not to return to the same spot for at least three years. It is much the best plan to make the ground very rich this year, and put on some light crop; then it will be in perfect order for the Gladioli next. Increase of desirable sorts is effected by the small bulbs or bulblets that form at the base of the new bulb, which are produced in greater or less quantities. Some varieties will have on an average a hundred in a year; others will produce scarcely any. This will, in a great measure, account for the marked difference in prices of the named sorts; it will also account for the rapid increase in the more common sorts, and the sudden disappearance of those greatly prized. Choice sorts are but short-lived, unless they are increased by bulblets. In many of our named sorts, old bulbs will not produce good flowers, if, indeed, they produce any; consequently the bulblets from all favorite sorts should be planted every spring, or at least a sufficient number of them for a required stock. The bulblets should be planted in spring in any convenient out-of-the-way place in the garden, and given the same treatment as is recommended for the seed. If in rich, light soil, very nearly all will flower the second year. They require but little room the first year. Prepare the rows about the width of the common garden hoe, and sow the bulblets (or seeds) so close that they will nearly touch each other, and they will do much better than if more scattered. During winter the bulbs, without regard to size or age, are best kept in a dry, cool cellar. Plantings should be made as early in spring as the ground can be got in order, no matter if there should be hard frosts after; it will not penetrate the ground sufficiently to injure them. For late flowering some of the stronger bulbs may be kept until the first of July, which will keep them back until about the first of October. It is now

also a common practice with florists to reserve Gladiolus bulbs until August, which are then planted in boxes, four or five inches deep, in rich soil. The boxes are kept out of doors until frost, when they are placed in a cool green-house, where they flower from November to December, at a time when they command good prices. A number of the early flowering sorts, such as John Bull, white; La Candeur, white, striped with violet; Shakespeare, white, suffused with carmine; Isaac Buchanan, yellow; Martha Washington, light yellow; Eugene Scribe, rose, marked with red, Brenchleyensis, scarlet, etc., are also forced, during the spring months, for their flowers, many florists finding them a paying crop between the rows of young roses, etc., as they take up but little room, and are removed before the roses require the space. Notwithstanding that most of the original species have long since been superseded by the numerous and beautiful hybrids now in cultivation, many of them are worthy of being retained for the mixed flower border. *G. natalensis*, *G. cardinalis*, *G. floribundus*, *G. tristis*, etc., the parents of the early hybrids *G. Gandavensis*, *G. Colvillei*, etc., are still largely cultivated. The latter species, with its beautiful pure white variety, *G. C. Alba*, better known in cultivation as "The Bride," are amongst the most beautiful for pot culture. They succeed admirably, and may be had in full beauty by January, if gently forced. The two latter are, moreover, perfectly hardy, and, blooming naturally about the first of June, are welcome additions to our hardy border plants. It is advisable, however, to protect them during winter with a mulching of leaves or some such material, all bulbs succeeding better when not exposed to too much frost. *G. purpureo-auratus*, another hardy species, the perianth limb of which is golden-yellow, with a large purple blotch on the two lower segments, is the parent of an entirely new section, happily called the "Butterfly Gladioli." They are of all shades of color, beautifully marked and shaded with large, distinct blotches of purple, maroon, or rosy-purple, on the lower petals, similar to the markings on the Fancy Pelargoniums. *G. Saundersoni*, introduced about the same time as the foregoing (1872), has very showy crimson flowers, spotted with white, and is likely to prove valuable for hybridizing purposes.

Gladwyn, or **Gladden**. The common name for *Iris fœtidissima*.

Glands. Wart-like swellings found on the surface of plants, or at one end of their hairs, serving the purpose of secreting organs. They are extremely various in form.

Glandular. Covered with hairs, bearing glands upon their tips.

Glass and **Glazing.** If for winter forcing of either fruit or flowers, the glass should be not less than ten by twelve inches in size, laid in the twelve way, and if twelve by twenty all the better. Even with the greatest care, some flaws in the glass will escape detection, and more or less burn the leaves after the sun becomes strong, to counteract which a slight shading had better be used on the glass from April to September. We use naphtha, with just enough white lead mixed in it to give it the appearance of thin milk. This we put on

with a syringe, which sufficiently covers up all flaws in the glass to prevent burning, and at the same time tends to cool the house from the violence of the sun's rays. This is by far the cheapest and best shading we have ever used. It can be graded to any degree of thickness, and costs only about twenty-five cents per thousand square feet of glass, for material and labor.

In glazing, the method now almost universally adopted is to bed the glass in putty, and tack it on top with glazier's points, using no putty on the top. The glazier's points are triangular, one corner of which is turned down, so that, when it is driven in, it fits the lower edge of each pane and prevents it from slipping down. A great mistake is often made in giving the glass too much lap. It should only be given just enough to cover the edge of the pane (from one-eighth to one-fourth of an inch). If given too much, the water gets in, and when it freezes it cracks the glass.

All who have had experience with greenhouses know that, no matter how well the glazing has been done by bedding the glass in putty, the water gets in at the crevices sooner or later, rotting the putty, and, consequently, loosening the glass. A simple plan to obviate this (which has recently been introduced) is to pour along the junction of the bar with the glass a thin line of white lead in oil from the slender spout of a machine oil can, over which is shaken dry sand. This at once hardens, and makes a cement which effectually checks all leakage. This, carefully done, will make such a tight job that no repairs will be necessary for many years.

Glasswort. See *Salicornia.*

Glastonbury Thorn. *Cratægus oxyacantha præcox.* A very early flowering variety of the Hawthorn.

Glaucescent. Having a bluish-green or sea-green appearance.

Gla'ucium. Horned Poppy. From *glaukos,* grayish green; referring to the color of the leaves. Nat. Ord. *Papaveraceæ.*

A genus of hardy annuals and perennials, natives of Europe. They are remarkable for their bright yellow flowers, that are produced in great abundance all the summer, and for their deeply cut leaves, that have a decided glaucous hue. *G. luteum,* one of the most showy and desirable species, is very common at Montauk Point, Long Island, and on the islands along the coast, having become naturalized from Europe. This species grows readily from seed, and makes a valuable plant for the ribbon border.

Glaucous. Covered with a fine bloom, like that of the Plum or *Echeveria secunda glauca.*

Gla'ux. Sea Milkwort. A pretty little native herbaceous perennial belonging to *Primulaceæ. G. Maritima,* the only species, grows abundantly on most parts of the sea-coast, just above high-water mark, and in salt marshes. The stems are clothed with oblong, fleshy, smooth, entire leaves, which are pale underneath, and salt to the taste. The flesh-colored flowers are solitary, nearly sessile, and axillary.

Glazing. See *Glass.*

Glecho'ma. Now included under *Nepeta,* which see.

Gledi'tschia. Honey Locust. In honor of *Gottlieb Gleditsch,* once a professor at Berlin; a defender of Linnæus against Siegesbeck, and author of many botanical works. Nat. Ord. *Leguminosæ.*

A genus of handsome hardy deciduous trees, several of the species being common in the Middle, Southern and Western States. *G. triacanthos,* the Three-thorned Acacia or common Honey Locust, is a common and very ornamental shade tree with elegant foliage. Its wood is heavy, hard, strong and compact, capable of a high polish, and very durable in contact with the soil. From its strong and abundant thorns it is very valuable, and is much cultivated as a hedge plant.

Gleiche'nia. Named after *Gleichen,* a German botanist. Nat. Ord. *Polypodiaceæ.*

An extensive genus of Ferns found widely scattered in the tropics, both of the Old and New World, and extending to Chili and the Australasian regions. A few only have found their way into the hot-house, some of which are among the most elegant and graceful of the cultivated Ferns. They are propagated by division or from spores. Introduced in 1823.

Gleichenia'ceæ. A group or sub-order of *Filices.*

Glo'bba. Native Molucca name. Nat. Ord. *Zingiberaceæ.*

A genus of about twenty-four species of pretty plant-stove, herbaceous perennials, natives of India and the Malayan Archipelago. Flowers yellow or pinkish, very curious looking. Of easy culture in a warm green-house; increased by division.

Globe Amaranth. See *Gomphrena globosa.*

Globe-Daisy. *Globularia vulgaris.*

Globe-Flower. The genus *Trollius,* which see. Swamp. *Cephalanthus occiaentalis.*

Globe-Thistle. The genus *Echinops,* which see.

Globose, Globular. Round or spherical.

Globula'ria. From *globulos,* a small round head; in allusion to the form of the capitate flower. Nat. Ord. *Selaginaceæ.*

A genus of hardy or green-house perennial herbs or shrubs inhabiting the Mediterranean region, etc. Flowers collected upon a common receptacle surrounded by a many-leaved involucre. Pretty plants for the rock garden or herbaceous border; propagated by seeds or by division.

Globule'a. From *globulos,* a small globe; referring to the glands on the petals. Nat. Ord. *Crassulaceæ.*

A genus of succulent plants, natives of the Cape of Good Hope, with flat, sickle-shaped leaves, arranged in a rosette. The flowers are small, arranged in dense clusters, and have five petals bent inward, each of them tipped with a little globule of waxy matter, whence the name of the genus, which is closely allied to Crassula. The several species are propagated by cuttings of firmish young shoots, that should be dried a day or two before being put into the propagating bed. Introduced in 1732.

Glomerate. Collected into close heads or parcels.

Glone'ria Jasminiflora. See *Psychotria jasminiflora.*

Glorio'sa. From *gloriosus*, glorious; because of the magnificent flowers. Nat. Ord. *Liliaceæ*.

A very handsome genus of green-house bulbs, of limited climbing habit, the flowers curiously shaped, bright yellow or orange in color. They should be grown in pots of very sandy loam, and treated in the manner recommended for Gesnera, except that, being climbing plants, they will require to be supported with sticks or a trellis. Natives of south Africa, introduced in 1825. Syn. *Methonica*.

Glory-Flower. Chilian. *Eccremocarpus scaber*.

Glory of the Snow. See *Chionodoxa*.

Glory-Pea. Dampier's. *Clianthus Dampieri*. New Zealand. *Clianthus puniceus*.

Glory-Tree. *Clerodendron fragrans*, and other species.

Glossoco'mia. From *glossocomos*, a money-bag; referring to the shape of the flower. Nat. Ord. *Campanulaceæ*.

A small genus of hardy herbaceous plants, with white or purple bell-shaped flowers, from northern India. They are increased by seeds or division. Introduced in 1839. Syn. *Codonopsis*.

Gloxi'nia. Named after *P. B. Gloxin*, a botanist of Colmar. Nat. Ord. *Gesneraceæ*.

The species that compose this splendid genus are, with one or two exceptions, natives of South America, and are usually found in deep ravines, on rather high mountain elevations, and in damp, much-shaded situations. The species are among the greatest ornaments of our green-houses, and the richness of their foliage, and their ample, graceful, and delicately-tinted flowers, have gained for them a prominent place among the more choice flowering plants. Here, as in many other instances, the process of hybridizing has been largely resorted to, and the results are most satisfactory. The older kinds, with drooping flowers, have mostly given place to forms with the corolla almost regular and nearly erect, the latter peculiarity having this recommendation, that the border and throat of the corolla, to which parts much of the beauty of the flower is owing, are presented to the eye. The hybrids are greatly improved in color as well as form, and the flowers are produced in greater abundance than with the species. The main art in growing *Gloxinias* well, is to give them a porous and well-enriched soil, to grow them in a warm, moist atmosphere, and as soon as they begin to flower to remove them to a cooler house, and afterward dry them off gradually, and keep them free from moisture till they again begin to grow. To produce the richest colors the glass should be shaded, or they should be grown where there is only a northern exposure. *Gloxinias* are readily propagated by their leaves; all that is required is to insert the leaf, about one-half its length, in an ordinary propagating bed, keep the sand moderately wet until the leaf is completely dried up, then withhold water entirely, and leave the newly-formed tubers until the following February, at which time they will commence to grow, when they should be taken out and potted. They will flower in one year after the cuttings are put in. They are also produced easily from seed, which they ripen abundantly. On account of its very small size it should be sown on a smooth surface of soil, and merely covered with a slight covering of moss laid lightly over, and kept on until germination has taken place. As soon as they are fit to handle the plants are pricked out into small pots or shallow boxes, and with careful attention they will make flowering plants the first season. In all the stages of growth, whether the plants are large or small, care should be taken, in watering, to avoid wetting the leaves, or to have the earth sodden around them; either will cause them to damp off and rot. They require a warm temperature when growing, and are exceedingly useful if planted in a warm frame and shaded from bright sun, for growing for cut flowers during the summer months. This plant was first introduced in 1739.

Glumaceous. Plants are said to be glumaceous when their flowers are like those of grasses.

Glume. The exterior series of the scales which constitute the flower of a grass.

Glutinose. Covered with a sticky exudation.

Glyce'ria. From *glykeros*, sweet; alluding to the herbage. Nat. Ord. *Graminaceæ*.

An extensive genus of grasses, mostly aquatic. They are of but very little beauty or interest. A few of the species that grow in moist meadows, near the sea-coast, furnish a pasture that is relished by stock of all kinds. The species are common throughout the Northern, Eastern, and Western States.

Gly'cine. From *glykys*, sweet; referring to the taste of the roots of some of the species. Nat. Ord. *Leguminosæ*.

A small genus, nearly all of which are tender climbing plants, producing axillary flowers, singly or in racemes, white, yellow, or rose; they are only adapted for green-house culture. There is one species, *G. soga*, that is a hardy annual, a native of Japan, that produces seeds like small kidney beans, which the Japanese use in large quantities, either in soup, or in making a sauce called sooja or soy, this sauce being used in many of their dishes. The *Wistaria* was formerly incorrectly called Glycine.

Glycyrrhi'za. Liquorice. From *glykys*, sweet, and *rhiza*, a root; referring to the sweet juice of the roots of the liquorice. Nat. Ord. *Leguminosæ*.

A genus of hardy herbaceous perennials, the one of principal interest being *G. glabra*, a native of Italy, the roots of which produce the Liquorice of commerce. None of the species are cultivated as ornamental plants.

Glypto'strobus. Embossed Cypress. From the Greek words *glyptos*, carved or engraved, and *strobos*, a cone; from the embossing on the scales. Nat. Ord. *Coniferæ*.

G. sinensis pendula, the best known species, popularly known as the Chinese Weeping Deciduous Cypress, was formerly included in the genus *Taxodium*. Mr. Scott says of this tree: "Though this belongs to a section of the Conifers, which are deciduous, they are in all other respects so allied in appearance with the evergreens as usually to be classed with them. This variety in the neighborhood of New York is certainly the most beautiful and hardy of all the deciduous Cypresses. The tree in its whole appearance is so distinct from all other trees generally cultivated

in this country that it is certainly one of the most desirable novelties among trees. We have seen it only in autumn, at which time the weeping character of the foliage is not marked, and the outline is distinctly formal. The pendulousness is only in the curl and droop of the young foliage, the branches radiating quite rigidly. It is known in China as the water pine, and found principally in the maritime districts. The tree grows from twenty to thirty feet high, and casts its lower limbs as it rises; so that at maturity its form is like that of the common pear tree, or somewhat more slender." Like all others of the tribe, this will thrive in almost any soil, preferring a moist situation. Syn. *Taxodium.*

Gnapha'lium. Cudweed. From *gnaphalon*, soft down; in reference to the woolly covering of the leaves. Nat. Ord. *Compositæ.*

A genus known as *Everlastings.* Many of the species formerly included in it are now classed with *Helichrysum.* There are several species, hardy perennials, very common in the Middle and Southern States, which are the only ones worth cultivating.

Gneta'ceæ. A small order of shrubs, natives principally of the tropics. The seeds of some of the species are edible. *Welwitschia* and *Ephedra* are the best known genera.

Gni'dia. The ancient name of the Laurel. Nat. Ord. *Thymelaceæ.*

A genus of green-house evergreens, producing pale yellow flowers. In habit they resemble the Heath. They are quite pretty, but difficult of cultivation, and are propagated by cuttings. They are natives of the Cape of Good Hope; introduced in 1768.

Goat's Beard. A popular name of *Spiræa aruncus* and *Tragopogon pratensis.*

Goat's-eye. See *Ægilops.*

Goat's Rue. See *Galega.*

Goat's Wheat. The genus *Tragopyrum.*

Gode'tia. Named by Spach, a German botanist, resident of Paris; it is probably a Latinized proper name. Nat. Ord. *Onagraceæ.*

A genus of exceedingly handsome and showy hardy annuals from California, growing about a foot and a half high, and producing numberless rosy-lilac flowers. The seeds should be started in the hot-bed in March, and transplanted into poor soil when danger from frost is over. They require plenty of room; close planting will draw them up, and weaken them, and rich soil will produce more leaves than flowers. Included by some authors under *Œnothera.*

Godwi'nia. Derivation of name not given. *G. gigas*, the only species under cultivation, is a native of Nicaragua, and belongs to the Nat. Ord. *Aroideæ.*

From a large tuberous root-stock it throws up a single leaf, with a mottled stalk ten feet high, the blade being very largely and deeply pedately cut. The inflorescence appears at a different time from the leaf, and consists of a stalk about ten inches high, supporting an oblong purple hood-like spathe sometimes two feet in length, which spreads open a little at the top, but elsewhere closely envelops the short spadix, which latter is completely covered with hermaphrodite flowers. The stamens are twelve in number in two rows, and by this

circumstance *Godwinia* may be distinguished from the nearly allied genus *Dracontium.* It was supposed to be the largest Arad, both as to leaf and flower known, until the discovery of *Amorphallus titanum* by Dr. Beccari in western Sumatra. "The tuber dug up by the doctor measured five feet in circumference and was so heavy that ten men could scarcely carry it. From this tuber only one leaf is produced, but what a leaf, to cover an area of forty-five feet in circumference." The leaf-stalk is ten feet high, divided at the top into three branches, each as large as a man's thigh. It flowered for the first time under cultivation at Kew, in June of this year (1889), the spadix and flower stem together reaching to the height of seven feet.

Goe'thea. Named in honor of *Goethe*, the celebrated German poet. Nat. Ord. *Malvaceæ.*

A genus comprising four species of evergreen shrubs, natives of Brazil. The well known *Pavonia Makoyana* and *P. Wyoti*, are now included in this genus, the latter as *G. multiflora.*

Gold-Cups. *Ranunculus bulbosus.*

Gold-Dust. A popular name for *Alyssum saxatile.*

Golden Chain. *Cytisus Laburnum.*

Golden Club. See *Orontium.*

Golden Crown. The genus *Chrysostemma.*

Golden Feather. See *Pyrethrum.*

Golden Rod. See *Solidago.*

Golden Thistle. See *Scolymus.*

Golden Vine. See *Stigmaphyllum ciliatum.*

Gold Fern. Various *Gymnogrammas.*

Gold Leaf Plant. *Aucuba Japonica.*

Goldfu'ssia. Named after *Dr. Goldfuss*, Professor of Natural History in the University of Bonn. Nat. Ord. *Acanthaceæ.*

A genus of green-house evergreen shrubs, from Silhet. The flowers have two deciduous bracts, and are arranged in a head or spike, which, after the fall of the bracts, becomes very loose and straggling. The flowers are funnel-shaped, blue or purple. The plants require to be cut well back after flowering, and are propagated by cuttings. *G. anisophylla*, is well known in cultivation under the name of *Ruellia.* Introduced in 1838. Syn. *Strobilanthus.*

Gold Thread. See *Coptis.*

Goldylocks or **Goldilocks**, a common name for *Chrysocoma Linosyris.*

Gombo or **Okra.** See *Hibiscus.*

Go'mphia. Button Flower. From *gomphos*, a club; alluding to the shape of the fruit. Nat. Ord. *Ochnaceæ.*

A genus of very beautiful tender shrubs from the West Indies and South America The flowers are pure bright yellow, borne in dense panicles. They require the warmest place in the green-house; propagated by cuttings.

Gompholo'bium. From *gomphos*, a club, and *lobos*, a pod; shape of seed vessel. Nat. Ord. *Leguminosæ.*

A small genus of elegant green-house twining shrubs, found in south and west Australia. Several of the species have been introduced into the green-house, where they produce their blossoms in the spring and summer

months. The flowers are large, pea-shaped, yellow and crimson, and rose-purple. *G. polymorphum splendens* is a profuse bloomer, opening in succession its intense crimson and yellow flowers in May. The largest flowered species is *G. barbigerum*, so named because of the keel petal being fringed, its pale yellow flowers are axillary, and are produced singly.

Gomphre'na. Globe Amaranth. From *gomphos*, a club; alluding to the shape of the flowers. Nat. Ord. *Amaranthaceæ*.

This is supposed to be the Amaranth of the poets, which, from the durability of its flowers, was considered to be the emblem of immortality. It seems to have been used at funerals in the time of Homer, as he describes it as worn by the Thessalians at the funeral of Achilles. The *Gomphrenas* are tender annuals. The seeds are slow to germinate, and should be sown in March in a hot-bed or in seed pans in the green-house. The plants will be greatly benefitted by pricking out, or re-potting before planting in the open border. With this treatment single plants can be made to produce several hundred flowers. The flowers of the garden varieties are white, purple, and striped. If cut before fully ripe and tied in bunches, and allowed to dry in a rather dark and airy room, they will retain their colors the whole season, making them desirable for bouquets of dried flowers. *G. globosa*, the best known species, is a native of India; introduced in 1714.

Gomuti or **Gomuto.** See *Saguerus*.

Gongo'ra. Named after a Spanish viceroy of New Grenada. Nat. Ord. *Orchidaceæ*.

A singular genus of Orchids from tropical America. They are compact growing and evergreen, producing long pendulous racemes of flowers rich in color and often grotesque in appearance. They can be successfully grown in what is termed a "cool Orchid house," or a green-house.

Goniophle'bium. From *gonia*, an angle, and *phlebia*, a vein; alluding to the veins of the fronds. Nat. Ord. *Polypodiaceæ*.

Hot-house Ferns, found in nearly all tropical countries. A few are simple-fronded species, with a creeping, ivy-like habit, and contracted fertile fronds; but they have mostly stoutish, slow-creeping rhizomes, and large fronds, often of a pendulous habit, and sometimes several feet in length. Some of the species are exceedingly handsome, and valued in collections, *G. subauriculatum* with long drooping pinnate fronds often four feet in length, being one of the most beautiful ferns for large hanging baskets in the warm green-house or plant stove. They are all propagated by spores or by division in spring. This genus is now placed by some botanists under *Polypodium*.

Gonio'pteris. From *gonia*, an angle, and *pteris*, a fern; referring to the leaves. Nat. Ord. *Polypodiaceæ*.

A genus of tropical ferns abounding in the West Indies, South America, tropical Africa and Madagascar, in India, the Pacific islands, Australia and New Zealand. In most respects this genus is similar to *Polypodium*, and is now placed under that genus by many botanists.

Gono'calyx. A very beautiful plant of the Nat. Ord. *Ericaceæ*, discovered by Schlim in New Grenada, at an elevation of 7,000 feet. It forms a shrub of an erect, bushy habit, thickly clothed with small, nearly orbicular leaves, and bearing fine bright red tubular flowers. The young leaves and shoots are of a purplish-rose color. *G. pulcher*, the only species, is easily increased by cuttings.

Gono'lobus. A large genus of *Asclepiadaceæ*, natives of tropical and North America, consisting of twining, herbaceous or shrubby plants, with greenish or dingy purple flowers, borne in racemes or corymbs. Upwards of sixty species have been described.

Goode'nia. Named in honor of *Dr. Samuel Goodenough*, author of a monograph of the genus *Carex*. Nat. Ord. *Goodenovieæ*.

A genus of herbaceous plants and a few shrubs, with usually yellow, rarely blue, flowers. They are natives of Australia, Tasmania and New Zealand. Propagated by cuttings in spring.

Goodeno'vieæ. A natural order of herbs, or sub-shrubs; the juice not milky, with scattered exstipulate leaves and distinct flowers. Natives chiefly of Australia and the islands of the Southern Ocean. There are about twelve genera and nearly two hundred species. *Dampiera*, *Goodenia* and *Leschenaultia* are good examples.

Go'odia. Named after *P. Good*, a collector of plants in Australia for the Kew Gardens. Nat. Ord. *Leguminosæ*.

Handsome evergreen shrubs from New Holland. They are all erect, symmetrical plants, with beautiful foliage. The flowers are pure yellow, produced in racemes like those of the Laburnum, but smaller. They require green-house treatment, and are propagated by seeds or cuttings.

Good King Henry. Common name for *Chenopodium Bonus Henricus*.

Goo'dyera. Named after *J. Goodyer*, an early British botanist. Nat. Ord. *Orchidaceæ*.

A genus of terrestrial Orchids, with small white flowers like those of *Spiranthes*, but the spike is not spiral. It consists of very few species, all from the northern hemisphere, and mostly from high latitudes or mountain ranges. *G. discolor* has dark green velvety leaves with a silver stripe down the middle, and is a very handsome plant; it requires a warm green-house. *G. pubescens* and *G. repens*, with green leaves, beautifully veined with silver, and pure white and greenish-white flowers, are common to our woods from New York to Wisconsin, and are choice and beautiful plants for the rock-work or rock-garden.

Gooseberry. See *Ribes*.

Cape. *Physalis Peruviana* and *P. pubescens*.

Gooseberry Shrub. See *Pereskia*.

Goose-foot. See *Chenopodium*.

Goose-grass. See *Galium*.

Gordo'nia. Named by Dr. Garden in honor of his old master, *Dr. James Gordon*, of Aberdeen. Nat. Ord. *Ternstromiaceæ*.

A genus of half-hardy deciduous shrubs or low trees, common in the Southern States. *G. lasianthus*, popularly known as Loblolly Bay, has large white, showy flowers, and is common in swamps near the coast from Virginia southward.

GOR

Gorse or **Goss.** Names given to the Whin, *Ulex Europæus.*

Gossy'pium. Cotton Plant. From *goz,* or *gothro,* an Arabic word signifying a soft substance. Nat. Ord. *Malvaceæ.*

There are several distinct species of cotton plants, and a great many varieties. Some are herbaceous annuals, others shrubs three or four feet in height, and others attain a height of from fifteen to twenty feet. The stems are smooth or hairy, leaves either three or five lobed, fine shaped, cordate, blunt, or lanceolate. The flowers are large, with yellow or white petals, and a purplish center, and are succeeded by pointed pods, which, on coming to maturity, burst, and display a profusion of white or yellowish down that forms the cotton of commerce. In the center of this down are contained the seeds, varying in number from ten to thirty, according to the species, of a dark brown color, and of a very oily nature. The early history of the Cotton plant is involved in obscurity, nor can it be ascertained in what region of the globe it was first cultivated and applied to purposes of domestic use. Herodotus, who wrote about 450 B. C., and who had traveled into Egypt, and was familiar with its productions, does not describe the Cotton plant as existing there, but gives some obscure hints of such a plant being in use in India. The inhabitants of India, he says, possess a kind of plant which, instead of fruit, produces wool of a finer and better quality than that of sheep; of this the natives make their clothes. When describing the corselet of Amasis, he accordingly designated Cotton under the name of tree-wool, a combination of terms which the Germans use for the same substance at the present day. His particularly detailing the linen garments of the Egyptians, and their mode of weaving linen cloth, as differing from that of the Greeks, while he omits all mention of the manufacture of cotton garments, would lead us to suppose that the Cotton plant was unknown to the Egyptians; and that, if they possessed Cotton cloth at all, it was imported from India. Pliny, however, in his work on Natural History, describes the Cotton plant as a small shrub growing in Upper Egypt, called by some *Xylon,* and by others *Gossypium,* the seeds of which are surrounded by a soft downy substance of a dazzling whiteness, and which is manufactured into cloth much esteemed by the Egyptian priests. This was five centuries after the time in which Herodotus wrote, and during this period the plant may have become more common. From Pliny's account, it would not appear that Cotton was much used at Rome, even in the first century of the Christian era, nor for many centuries afterward was its use introduced into Europe. But in the ninth century the Arabians, who were then in possession of Egypt, appear to have used Cotton cloth for their ordinary garments; for one of the first remarks of two Arabian travelers, who went to China at that period, was, that the Chinese, instead of weaving Cotton, as they and their countrymen did, chiefly used silk stuffs. It is probable, then, that the Cotton plant first came from Persia to Egypt, whence it spread into Asia Minor, and latterly to the islands of the Archipelago. In the time of Tournefort, who visited these islands, Milo was celebrated

GOU

for its Cotton. The Cotton now raised in small quantities in the Cyclades possesses that dazzling whiteness which Pliny describes as the property of the Egyptian Cotton. The Cotton plant has been grown from an early period, in the West Indies, in the Southern States, and in South America. Whether any of the species are natives of this Continent, it is difficult to say; the probability is, however, that it was introduced, soon after the discovery of the West Indies, into these settlements, from Smyrna. It should be stated, however, that Cotton cloth has been found in the tombs of the Incas of Peru. The extensive cultivation of Cotton in this country is of a recent date. In 1784, eight bags were sent from this country to England, which were seized, on the ground that so much Cotton could not be produced in the United States. Since the Revolution, the increase of production has been steady and rapid. Of the species under cultivation, *G. Barbadense* is the one grown in the United States, and of this there are two varieties, the Upland Cotton, or short staple, and the Sea Island Cotton, or long staple. This species is a native of India, whence it was transplanted into the West Indies, and from there into the United States. *G. herbaceum,* the herbaceous Cotton plant, is the species cultivated throughout Europe and Asia. It is an annual plant, growing to the height of about twenty inches. The Tree Cotton, *G. arboreum,* is a perennial species, growing from fifteen to twenty feet high, and is considerably grown in the African Colonies, but does not yield a very fine staple. A great impetus has been given of late years to the cultivation of Cotton in India, and its development has been largely increased by the opening up of railroads, etc., and by the introduction of American varieties, and of new forms adapted for special purposes. Among these latter may be mentioned the crossed seedlings produced by Major Trevor Clarke, a collection of which exhibited in the London International Exhibition in 1872 caused considerable excitement at the time. *G. Bahma,* Bahma, is a variety that originated in Egypt several years ago, and is said to be a hybrid between the Egyptian Cotton and *Hibiscus esculentus.* It differs from other Cottons in its larger size and its erect, almost unbranched habit. It also produces more Cotton. A very coarse growing species, *G. bombyx-ceita,* is common in the West Indies, said to be indigenous there. The trunk of this species is sufficiently large to hollow out for canoes, and yields a valuable lumber; the Cotton is of a coarse, inferior quality. The general uses of this staple are too important and well known to require comment. The seed has, however, a value but little known. Near the City of New York there is an oil mill that makes daily several thousand gallons of oil from Cotton seed, which is sent to Italy, there bottled, and sent all over the world, and sold as a very superior quality of Olive Oil, for table use. The seed is also valuable as a manure.

Go-to-bed-at-noon. See *Tragopogon.*

Goua'nia. Chaw Stick. Named after *A. Gouan,* once Professor of Botany at Montpelier. Nat. Ord. *Rhamnaceæ.*

A genus of climbing tropical shrubs, containing upward of twenty species. The most

GLADIOLUS (HYBRID).

GODETIA (TALL).

GOMPHRENA GLOBOSA (DWARF GLOBE AMARANTH).

GLOXINIA.

GLADIOLUS SAUNDERSONI.

GRAMMANTHES.

GRAPTOPHYLLUM.

GYPSOPHILA PANICULATA.

GODETIA (DWARF).

GLADIOLUS COLVILLI ALBA.

GYNERIUM ARGENTEUM (PAMPAS GRASS).

interesting, *G. Domingensis*, is a common creeper in the West Indies and Brazil. In Jamaica it is called Chaw Stick, on account of its thin, flexible stems being chewed as an agreeable stomachic, and tooth brushes are also made by cutting pieces of Chaw Stick to a convenient length and fraying out the ends; and a tooth powder is prepared by pulverizing the dried stems. It is said to possess febrifugal properties; and on account of its pleasant bitter taste is commonly used for flavoring different cooling beverages.

Gout-weed. Common name for *Ægopodium podograria.*

Gourd. The genus of *Cucurbita.*
Bitter. *Citrullus Colocynthis.*
Bottle. *Lagenaria vulgaris.*
Dish-Rag, or Washing. *Luffa cylindrica*, and *L. acutangula.*
Orange. *Cucurbita aurantia.*
Scarlet-fruited. *Coccinea indica.*
Snake. *Trichosanthes anguina.*
Wax or White. *Benincasa* (*Cucurbita*) *cerifera.*

Gove'nia. Named after *J. R. Gowen*, a distinguished horticulturist and hybridizer of plants. Nat. Ord. *Orchidaceæ.*

A small genus of interesting terrestrial Orchids from Mexico. The flowers are borne on spikes from one and a half to two feet high, in the same manner as the *Bletia.* The colors are mostly shades of yellow, beautifully marked with crimson. Propagation and culture the same as for *Bletia.*

Gowan. *Bellis perennis* or *Daisy.*

Gracilis. Slender, applied to the parts which are long and narrow.

Graft Hybrids. This is the term used by Mr. Chas. Darwin, in his work, "Plants and Animals under Domestication," to describe what he believes to be an amalgamation of the stock and the graft, so that there is a seeming blending of the individualities in some few cases which he cites. This theory of Mr. Darwin's is by no means universally accepted, and it is to be regretted that it should have been propounded with such a sparse array of examples in illustrating such a novel theory.

Grafting. This differs only from budding (which see), inasmuch as the operation is usually performed on deciduous plants when in a partially dormant condition, and that larger portions of the shoots are taken. The different forms of grafting are known as "wedge," "whip," "side" grafting, etc. Wedge grafting consists in sawing off the stock to be grafted, and shaping the "cion" or "graft" like a wedge, splitting the sawed off stock an inch or two, and inserting the wedge-shaped graft, being careful to let the bark of the graft join the bark of the stock. If the stock is more than an inch in diameter a graft should be placed on each side. The whip graft is used for small stocks, which are of the thickness of the cions to be grafted. The stock and cion are cut with a similar slope, an inch or more in length; to best keep them in place before being covered with wax or wax cloth, it is well to cut what is called a "tongue" in the center of each, so that, when placed together, the cion will keep in place, the tongues being interlocked. The whip system is that mostly used in root grafting Roses, Apples, Clematis, etc. After the cion has been attached to the stock by any of the methods of grafting, it is covered over either with a mixture of adhesive clay and cow dung or grafting wax, so as to keep it in position until it starts to grow.

Grafting wax can be purchased in most seed stores, but when wanted in quantity it is made according to the following formula: four pounds resin, three pounds bees-wax, and two pounds of tallow. This, heated and mixed, will give the grafting wax of the shops. A convenient way to use the grafting wax is to dip in it thin calico or muslin cloth, which can be torn into strips readily, and wrapped around the graft so as to exclude the air.

Grains of Paradise. See *Amomum.*

Gram or **Chick Pea.** See *Cicer.*

Gramina'ceæ. A natural order of annual or perennial herbaceous plants, with round, usually hollow-jointed stems; narrow alternate leaves, having a split sheath, and often a ligule at the summit, and flowers arranged in spikes or panicles, perfect or imperfect. The flowers are composed of a series of leaves or bracts, the outer called glumes, enclosing one or more flowers. Grasses are widely distributed over the world, forming about one-twenty-second of all known plants. "They contain in their herbage, and especially in their seeds, nutritious principles, which entitle them to the first rank among plants useful to man, and which are of the greatest importance in an economic and political point of view. The Cerealia are: Wheat, *Triticum sativum;* Rye, *Secale cereale;* Barley, *Hordeum vulgare, H. distichum*, etc.; Oats, *Avena sativa*, all cultivated by the Caucasian race in the northern and temperate regions. Rice, *Oryza sativa*, and Millet, *Panicum miliaceum*, originated among the Asiatic races. The Sugar-cane, *Saccharum officinarum* is in all probability a native of tropical Asia; it has been cultivated from very ancient times in the East Indies. A considerable number of *Graminaceæ* are medicinal, viz., *Triticum repens, T. glaucum, T. junceum, Cynodon Dactylon, Andropogon bicornis, Arundo Donax, Calamagrostis,*" etc. (Decaisne and Le Maout).

The grains of *Coix Lachrymæ* are used as beads under the name of Job's Tears. The Tussack grass of the Falkland Islands, is *Dactylis cæspitosa.* Some grasses, as *Calamagrostis* (*Ammophila*) *arenaria*, and others, are useful in binding the loose sand on the seashore. Darnel grass, *Lolium temulentum*, has reputed poisonous qualities, and some think that it is the Tares of Scripture. This order also furnishes numerous ornamental garden plants, some of the most striking of which are *Arundinaria falcata*, and *A. metake, Arundo Donax* (the Provence Cane), *Bambusa Arundinaceæ, Panicum plicatum variegatum, Zea Japonica variegata*, etc. There are about 300 genera of grasses, and 4,000 species.

Gramma'nthes. From *gramma*, writing, and *anthos*, a flower; marks like V being on the corolla. Nat. Ord. *Crassulaceæ.*

Succulent herbaceous plants, natives of the Cape of Good Hope. Seeds sown in the green-house in January will make very showy and interesting plants for rock-work during summer. The flowers closely resemble those

of *Crassula*, to which it is allied. Introduced in 1774.

Grammatoca'rpus. A synonym of *Scyphanthus*, which see.

Grammatophy'llum. From *grammata*, letters, and *phyllon*, a leaf; referring to the markings on the leaves. Nat. Ord. *Orchidaceæ*.

The species of this genus are but few in number, and are rarely seen in collections of Orchids, because of the difficulty in management. Those who have had the good fortune to flower them say that it is at the expense of years of patience and labor that their rare and curious flowers are produced. They are natives of Manilla; introduced in 1837.

Granadi'lla. A name given in the West Indies to the fruits of different species of the genus *Passiflora*.

Granular. Divided into little knobs and knots, as the roots of *Saxifraga granulata*; covered as if with small grains.

Grape. *Vitis vinifera.* Like many extensively cultivated plants, the native country of the Grape is unknown, or at least doubtful. It is among the plants spoken of in the Books of Moses, and it appears to have been cultivated and the fruit used then as at the present day. Noah planted a vineyard, and wine is mentioned as a beverage among the earliest nations of the world. The oldest profane writers ascribe its introduction to their gods. According to the tradition of the Egyptians, Osiris first paid attention to the Vine, and instructed other men in the manner of planting and using it. The inhabitants of Africa ascribe the same gift to the ancient Bacchus. Wine was among the first oblations to the Divinity. "Melchisedek, King of Salem, brought forth bread and wine, and he was the priest of the Most High God." Humboldt says the Vine does not belong to Europe, but is indigenous in Asia between the Black Sea and the Caspian, on Mount Ararat and on the Taurus. In the forests on Mongrelia it flourishes in great magnificence, climbing to the tops of the highest trees, bearing bunches of fruit of delicious flavor. We have no authentic account of the introduction of the Vine into the present grape-growing countries, or of the origin of the many varieties now under cultivation. More than one hundred varieties have been introduced into our graperies, and into the Southern States and California, where the climate will permit of their being grown in the open air. The Grapes grown throughout the United States have their origin in the species indigenous to North America. *V. labrusca*, the Fox Grape, common in swampy grounds from Maine to the Gulf of Mexico, is the parent of our best garden varieties, among others the Isabella, which originated in South Carolina, and the Concord, which originated in Massachusetts. The Catawba had its parentage in *V. riparia*, the common Frost Grape, or at least it is so accredited. The Diana, a seedling of the Catawba, was raised by Mrs. Diana Crehore of Boston. The introduction of new varieties, from seed, of various crossings, is being rapidly carried on by our enterprising horticulturists. See *Vitis*.

Grape Hyacinth. See *Muscari*.

Graptophy'llum. Caricature Plant. From *grapho*, to write, and *phyllon*, a leaf; referring to the markings on the leaves. Nat. Ord. *Acanthaceæ*.

A genus of tropical shrubs, inhabiting both hemispheres. A few of the species have been introduced into the hot-house for the beauty of their variegated foliage and their racemes of white flowers. *G. hortense*, syn. *G. pictum*, is properly called the Caricature Plant, from the fact that, when its leaf is held up to the light, it often presents nearly an exact profile of the human face. *G. h. lurido-sanguinea*, a more recent introduction, is a very distinct and beautiful species, with rich rose-colored spots or markings. Propagated by cuttings; first introduced in 1780.

Grass. A general name for all graminaceous plants.

Arrow. *Triglochin.*
Artificial. A name given by agriculturists to various fodder plants, as *Clover*, *Lucerne*, *Sainfoin*, *Sorghum*, etc.
Awned Hair. *Muhlenbergia capillaris.*
Barnyard. *Panicum Crus Galli.*
Bear. *Yucca filamentosa.*
Beard. The genus *Andropogon* and *Polypogon Monspeliensis.*
Bermuda. *Cynodon Dactylon.*
Black. *Alopecurus agrestis.*
Black Oat. *Stipa avenacea.*
Blue. *Poa compressa.*
Blue Eyed. *Sisyrinchium Bermudianum.*
Bottle. *Setaria glauca.*
Brome. The genus *Bromus.*
Canary. *Phalaris Canariensis*, the grain of which is the Canary seed of commerce
Cat's-Tail. *Phleum pratense.*
China. The fibre of the *Ramie*, *Bœhmeria nivea.*
Cock's-Comb. *Cynosurus echinatus.*
Cock's-Foot. *Dactylis glomerata.*
Cord. *Spartinia stricta.*
Cotton. The genus *Eriophorum.*
Couch. *Triticum repens.*
Crab. *Panicum sanguinale*, it is also applied to *Eleusine*, and *Salicornia herbacea.*
Crested Hair. *Kœleria cristata.*
Cuckoo. *Luzula campestris.*
Darnel. *Lolium temulentum.*
Deer. *Rhexia Virginica.*
Dog. *Triticum caninum.*
Dog's Tail. *Cynosurus cristatus.*
Dog's Tooth. *Triticum caninum.*
Drop-Seed. *Sporobolus* and *Muhlenbergia.*
Eel. *Zostera* and *Vallisneria spiralis.*
Elephant's. *Typha elephantina.*
False Red-Top. *Poa serotina.*
Feather. *Stipa pennata.*
Fescue. The genus *Festuca.*
Finger. The genus *Digitaria.*
Fiorin. *Agrostis vulgaris*, and commonly applied to *A. alba* and *A. stolonifora.*
Flote or Float. *Glyceria fluitans.*
Four-leaved. *Paris quadrifolia.*
Foxtail. *Alopecurus pratensis.*
Frog. *Salicornia herbacea.*
Gama. *Tripsacum dactyloides.*
Ginger. *Andropogon Nardus.*
Goat's beard. *Galium aparine*, also *Potentilla anserina*, and *Polygonum aviculare.*
Great Goose. *Asperugo procumbens.*
Grip. *Galium aparine.*
Guinea. *Panicum jumentorum.*
Hair. *Aira;* also *Trichochloa*, and *Agrostis scabra.*

Grass. Hard. *Sclerochloa;* also, *Ægilops*, and *Dactylis glomerata.*
Hare's-Tail. *Lagurus ovatus.*
Heath. *Triodia decumbens.*
Hedgehog. *Echinochloa*; also applied to *Cenchrus.*
Herd's, of New England. *Phleum pratense.*
Herd's, of Pennsylvania. *Agrostis vulgaris.*
Holy. *Hierochloa borealis.*
Horn. The genus *Ceratochloa.*
Horn of Plenty. *Cornucopiæ cucullatum.*
Indian. A local name for *Sorghum nutans.*
Indian Doob. *Cynodon Dactylon.*
Knot. *Triticum repens;* also, *Illecebrum*, and *Polygonum aviculare.*
Knot, of Shakespeare. *Agrostis stolonifera.*
Lemon. *Andropogon Schœnanthus.*
Lob, or Lop. *Bromus mollis.*
Love. *Eragrostis elegans.*
Lyme. *Elymus arenarius.*
Maiden-hair. *Briza media.*
Manna. *Glyceria fluitans.*
Marsh. The genus *Spartina.*
Mat. *Nardus stricta;* also, *Ammophila arenaria.*
Meadow. *Poa pratensis*, and *P. trivialis.*
Millet. *Milium;* also, *Sorghum vulgare, Panicum miliaceum, Setaria Italica*, etc.
Monkey. A commercial name for the whalebone-like fibre of *Attalea funifera.*
Moor. *Sesleria cærulea.*
Mountain, of Jamaica. *Andropogon bicornis.*
Mouse-ear Scorpion. *Myosotis palustris.*
Mousetail. *Festuca Myurus*, also *Alopecurus agrestis.*
Myrtle. *Acorus Calamus.*
Nut. *Cyperus rotundus var. Hydra.*
Oat. *Arrhenatherum avenaceum*; also various species of *Avena.*
Of Parnassus. *Parnassia palustris.*
Orange. *Hypericum Sarothra.*
Orchard. *Dactylis glomerata.*
Pampas. *Gynerium argenteum.*
Panic. *Panicum*; also *Ehrharta panicea.*
Para. A commercial name of the Piassiba fibre of *Attalea funifera.*
Pepper. *Pilularia globulifera*; also a local name for *Lepidium.*
Poverty. *Aristida dichotoma.*
Quake or Quaking. The genus *Briza.*
Quick or Quitch. *Triticum repens.*
Rattlesnake. *Glyceria canadensis.*
Red-top. *Agrostis vulgaris.*
Reed. *Arundo*; also *Calamagrostis* and *Phalaris.*
Reed Bent. The genus *Calamagrostis.*
Rib. *Plantago lanceolata.*
Ribbon. *Phalaris arundinacea variegata.*
Rice Cut. *Leersia oryzoides.*
Rope. The genus *Restio.*
Rush. The genus *Vilfa.*
Rye. *Lolium perenne.*
Salt. *Spartina juncea.*
Scorpion. *Myosotis arvensis.*
Scurvy. *Cochlearia officinalis.*
Sea. *Ruppia maritima.*
Sea Mat. *Ammophila arenaria.*
Sea Oat. *Uniola paniculata.*
Sea Spur. *Glyceria distans.*
Seneca. *Hierochloa borealis.*
Shave. *Equisetum hyemale.*
Shore. *Littorella lacustris.*
Silk. *Eriocoma cuspidata.*
Slender. *Leptochloa mucronata.*
Soft. *Holcus mollis.*

Grass. Sour. *Panicum leucophæum*, also a local name for *Rumex acetosa.*
Spear. *Poa annua*, etc.
Spike. *Uniola latifolia.*
Spiked Quaking. *Brizopyrum spicatum.*
Squirrel-Tail. *Hordeum jubatum.*
Star. *Callitriche;* also, the local name for *Hypoxis* and *Aletris.*
Striped. *Phalaris arundinacea variegata.*
Sweet. The genus *Glyceria.*
Sword. *Arenaria segetalis*, and *Melilotis segetalis.*
Thin. *Agrostis elata* and *perennans.*
Timothy. *Phleum pratense.*
Toad. *Juncus bufonius.*
Tussack or Tussock. *Dactylis cæspitosa.*
Vanilla. *Hierochloa borealis.*
Velvet. *Holcus lanatus.*
Vernal. Sweet. *Anthoxanthum odoratum.*
Viper's. The genus *Scorzonera.*
Water Scorpion. *Myosotis palustris.*
Water Star. *Leptanthus gramineus.*
Wheat. *Triticum.*
White. *Leersia Virginica.*
Whitlow. *Draba Verna* and *Saxifraga tridactylites.*
Wild Oat. *Danthonia spicata.*
Wind. *Apera Spica-venti.*
Wire. *Eleusine indica*, and *Poa compressa.*
Wire Bent. *Nardus stricta.*
Wood. *Sorghum* (*Andropogon*) *Nutans;* also *Luzula sylvatica.*
Wood Reed. *Cinna arundinacea.*
Woolly. *Lasiagrostis.*
Woolly Beard. The genus *Erianthus.*
Worm. *Spigelia;* also *Sedum album.*
Yard. *Eleusine Indica.*
Yellow-eyed. The genus *Xyris.*

Grass Cloth Plant. *Bœhmeria nivea.*

Grasses. Ornamental. A number of hardy and half-hardy perennial grasses, as well as numerous annual species are cultivated for the double purpose of rendering the mixed flower-border or shrubbery attractive during the summer and for the use of the spikes or panicles in a dried state for winter bouquets. The perennial sorts, such as *Arundo conspicua Eulalia Japonica, E. Japonica variegata, E. zebrina, Arundo donax*, and *A. d. versicolor, Gynerium argenteum, Gymnothrix* (*Pennisetum*) *latifolium, Pennisetum longistylum, Stipa pennata*, and others, make splendid groups for lawn decoration, either singly or in large masses. Of the annual species a good selection is *Agrostis elegans, A. pulchella*, and *A. nebulosa, Briza maxima* and *B. minor, Bromus brizæformis, Hordeum jubatum, Eragrostis elegans, Coix lachrymæ* and *Lagurus ovatus.* If the hardier sorts are sown in the fall and wintered over, they will make finer plants, and produce larger spikes the following season.

Grass Tree. Australian. The genus *Xanthorrhœa.*

Gra'tiola. Hedge Hyssop. A genus of *Scrophulariaceæ*, consisting of pretty, free-flowering, hardy herbaceous plants, found in central Europe North America, and Australia. *G. officinalis*, the Hedge Hyssop of the herbalists, was in former times called *Gratia Dei*, on account of its active medicinal properties. Haller says that the abundance of this plant in some of the Swiss meadows renders it dangerous to allow cattle to feed in them.

GRA

Gravel Root. A common name for *Eupatorium purpureum.*

Graveolens. Strong-scented; having a smell which is unpleasant because of its intensity.

Grave'sia. Named in honor of *C. L. Graves*, a botanical collector of Madagascar. Nat. Ord. *Melastomaceæ.*

A genus of dwarf, showy herbs, natives of Madagascar. The leaves of *G. guttata* are of a rich dark-green color, profusely dotted with rose-colored spots, arranged in lines. It was introduced in 1864. There are several very beautiful varieties of this species. Propagated by cuttings in heat. Syn. *Bertolonia.*

Grease Wood. The genus *Sarcobatus.*

Great Celandine. The common name for *Chelidonium majus.*

Great Laurel. A name given to *Magnolia grandiflora*

Greek Valerian. The common name of *Polemonium cæruleum.*

Green Brier. See *Smilax.*

Green Dragon. A popular name for *Arisæma Dracontium.*

Green Fly. See Insects.

Green-house. The name generally given to all kinds of glass structures. For private purposes the styles are so varied that it would be useless, in this work to give examples, as in such cases it is always economy to employ a competent green-house architect; but for commercial purposes, in our own establishment, we use exclusively the ridge and furrow style; that is, the houses are joined to each other by a ten or twelve-inch gutter. Each house is twenty feet wide at base, four feet high at the gutter, and eleven feet high at the apex, giving an angle to the glass roof of about thirty-five degrees, which slopes equally to east and west. When green-houses are wanted for forcing Roses or other flowers in winter, it is better not to connect them together, but to make them say twenty feet wide at base, the roof forming what is known as a three-quarter span; that is, the long slope of the roof, which must face south, is about eighteen or nineteen feet long, while the short slope to the north is six or seven feet, both at an angle of about thirty degrees. The front or south wall should be four or five feet high, and the rear or north wall seven or eight feet high, making the apex from the ground level about ten feet. Our space will not admit of details of construction, for which see our work, Practical Floriculture, pages 76 to 105.

Greens. The common name for Spinach, Cabbage, Kale, and other leafy esculents.

Green Violet. See *Solea.*

Gre'ggia. A genus of *Cruciferæ* from New Mexico, discovered by *Dr. Gregg*, who died in California through over-exertion in scientific pursuits. *G. camporum*, the only species, so named from its growing on the campos, or plains, has the habit of a wall-flower, and all its parts clothed with a hoary pubescence. Its pink-and-white flowers are something like a stock (*Matthiola*), and are borne in loose terminal racemes.

Grevi'llea. Named after *C. F. Greville*, a patron of botany. Nat. Ord. *Proteaceæ.*

GRI

An extensive genus of green-house shrubs and evergreen trees, natives of New Holland. The species include lofty trees more than 100 feet high, and low-growing shrubs. *G. robusta*, the Silk Oak, is a magnificent tree, with orange-colored flowers. *G. Forsterii* is a similar species with bright scarlet flowers, that are produced when the tree is young. The foliage of the species is as varied as the size of the plants; on some of the trees it is needle-shaped; others have leaves closely resembling those of the *Acanthus.* Several of the species are under cultivation in the green-house, and are considered acquisitions. Young plants are obtained by cuttings or from seed.

Gre'wia. Named in honor of *Nehemiah Grew, M.D.*, famous for his work on the "Anatomy of Vegetables." This is an extensive genus of *Liliaceæ*, consisting of shrubs or small trees, confined mostly to the warmer regions of the Old World. Flowers yellow or rarely purple. The wood of the Dhamnoo, *G. elastica*, is very strong and elastic, and is much prized by the natives for making their bows. Most of the species have a fibrous inner bark, which is commonly employed for making fishing nets, ropes, etc.

Gre'yia. Named in honor of *Sir George Grey*, who was Governor-General of Cape Colony when the species was discovered. Nat. Ord. *Sapindaceæ.*

G. Sutherlandi, the only species, is a beautiful and distinct moderate-sized tree, found in the mountains about Port Natal. Its foliage is similar to a *Pelargonium.* The flowers are borne in dense axillary racemes, and are of a brilliant crimson color, giving to the plant a very handsome appearance. Flowering as it does from the old wood, full exposure to the sun is required to ripen the wood thoroughly, after which a season of rest is necessary, during which water may be withheld, giving only enough to keep the wood plump. When started into growth, it will flower freely. It was introduced in 1859, and is propagated by seeds, or cuttings of the half-ripened wood.

Gri'as. Anchovy Pear. From *grao*, to eat; the fruit being eatable. Nat. Ord. *Myrtaceæ.*

G. cauliflora is a tall, unbranched tree, with leaves two or three feet long, and bearing large whitish flowers, which proceed from the stem. The fruit has much the taste of the Mango, and is highly esteemed in the West Indies, where it is indigenous. The tree is largely cultivated, not only for its fruit, but for its highly ornamental character.

Griffi'nia. Named after *W. Griffin*, a patron of botany. Nat. Ord. *Amaryllidaceæ.*

A small genus of handsome bulbous plants from South America, producing large umbels of beautiful bright purple flowers. They require green-house treatment, and should have complete rest during winter. In March repot them, and they will immediately commence growth, and will require plenty of heat, light, air, and water. They are increased by offsets; introduced in 1822.

Grinde'lia. In honor of *David H. Grindel*, a German botanist. A genus of *Compositæ*, containing nearly twenty species, found, most generally, in Texas and Mexico. They are biennial, or perennial, suffruticose plants, with branching stems, and yellow flower heads, solitary, at the ends of the branches,

and from one to two inches in diameter. They are easily cultivated, and are increased by seeds or cuttings.

Griseli'nia. Named in honor of *Frank Griselini*, an Italian botanist. Nat. Ord. *Cornaceæ*.

A small genus of evergreen shrubs, nearly allied to *Aucuba* which they resemble in habit. They have shining coriaceous leaves, and small inconspicuous flowers, produced in terminal panicles. They are natives of New Zealand, Chili, and Brazil, and are of comparatively recent introduction. Their hardiness has not been tested in this country, but it is not likely they would endure the rigors of our winters, north of Virginia.

Gromwell. See *Lithospermum*.

Grono'via. Named in honor of *Dr. Gronovius*, a botanist at Leyden, and a friend of Linnæus. Nat. Ord. *Loasaceæ*.

G. scandens, the only known species, is a scandent herb resembling the Bryony. It is found from Texas to Venezuela, and was introduced in 1751, but is little cultivated.

Grossularia'ceæ. A natural order, now included by Bentham and Hooker with *Saxifragaceæ*.

Ground Cherry. See *Physalis*.

Ground Hemlock. See *Taxus*.

Ground Ivy. See *Nepeta Glechoma*.

Ground Laurel. See *Epigæa repens*.

Ground Nut. See *Apios tuberosa*.

Ground Pine. A popular name of *Lycopodium dendroideum*.

Ground Pink. See *Phlox*.

Ground Plum. A popular name of the fruit of *Astragalus caryocarpus*.

Groundsel. See *Senecio vulgaris*.

Groundsel Tree. See *Baccharis halimifolia*.

Gua'iacum. Lignum Vitæ. The original name in South America. Nat. Ord. *Zygophyllaceæ*.

A genus of ornamental trees with pretty blue flowers. *G. officinale* furnishes the well-known wood *Lignum Vitæ*, and also the drug known as *Gum Guaiacum*, which is procured by notching the trunk, and allowing the exuding juice to harden. It is a native of the West Indies.

Guava. See *Psidium*.

Guelder Rose. *Viburnum opulus*.

Guernsey Lily. *Nerine Sarniensis*.

Guevi'na. The native name. Nat. Ord. *Proteaceæ*.

G. Avellana, the only species, is a tree of medium size, a native of Chili and Peru. The flowers are in simple, erect racemes two to four inches long, and these are succeeded by round edible drupes, inclosing almond-like seeds, known as Chilian nuts. The latter have an agreeable, somewhat oily taste, while the fleshy part is made a substitute for the Pomegranate. Syn. *Quadria*. This tree is hardy in the Southern States.

Guilie'lma. Named in honor of *Queen Wilhelmine Carolina* of Bavaria. Nat. Ord. *Palmaceæ*.

A genus of palms confined to the tropical regions of South America, and containing three species which have tall, slender trunks armed with exceedingly sharp black spines. The large pinnate leaves have spiny leaflets and footstalks. *G. speciosa*, the Peach Palm, is cultivated on the banks of the Amazon and Rio Negro. Its edible fruits, which are about the size of Apricots, and bright-scarlet in color, are borne in large drooping bunches, and form a large portion of the food of the natives. The young plants make very handsome specimens for the green-house.

Guinea Corn. See *Sorghum vulgare*.

Guinea Grass. See *Sorghum halapense*.

Guinea Hen Flower. A name given to *Fritillaria Meleagris*.

Gum. A vegetable secretion which may be detected in the sap of most plants, and which is excreted by many, and hardens on their surface.

Gum Cistus. *Cistus ladaniferus*.

Gum Guaiacum. See *Guaiacum*.

Gum Tragacanth. *Sterculia Tragacantha*.

Gum Tree. Various species of *Eucalyptus*, which see.

Sour. *Nyssa multiflora*.

Sweet. *Liquidambar styraciflua*.

Gu'nnera. In honor of *J. E. Gunner*, a Swedish bishop and botanist. Nat. Ord. *Haloragaceæ*.

A small genus of half-hardy herbaceous plants, natives of South America and the Sandwich Islands. *G. scabra*, has been introduced into the English gardens, and is remarkable for its ragged, rhubarb-like leaves, which are fully three feet across, borne on stout, thorny stems. The plant is also notable for its remarkable size; a good specimen being from four to five feet high, and eight to ten feet in diameter, and forming an excellent subject for the sub-tropical garden. It is propagated by seeds, or careful division.

Gusta'via. Named after *Gustavus III.* of Sweden. Nat. Ord. *Barringtoniaceæ*.

A genus of fine evergreen trees and shrubs, with large, handsome, glossy leaves and showy white flowers, tinged with pink, sometimes five or six inches across, and not unlike those of some Magnolias, disposed in racemes or umbels at the ends of the twigs. The fruits are somewhat fleshy and apple-like. *G. gracillima*, has a smooth, slender, woody stem, and is a magnificent ornamental plant, introduced from the United States of Columbia by M. Roezl. The flowers grow from the axils of the leaves of the young plants, and from the leafless parts of the trunk in the older ones. They are solitary or in pairs, four inches in diameter, of a beautiful rose color, consisting of eight petals, with the yellow incurved staminal tube bearing numerous purple anthers in a ring of an inch or more across. This species was introduced in 1874, and is propagated by cuttings of well-ripened wood.

Gutta Percha. See *Isonandra*.

Guttatus. Spotted.

Guzma'nnia. Named after *A. Guzman*, a Spanish naturalist. Nat. Ord. *Bromeliaceæ*.

Green-house perennials, natives of South America. *G. tricolor* is a very handsome species, with flowers on a spike, concealed by the bracts, the lowermost of which are green, while the others are scarlet. It requires ordinary green-house treatment, and is propagated by suckers.

GYM

Gymne'ma. From *gymnos*, naked, and *nema*, a filament; in reference to the stamens. Nat. Ord. *Asclepiadaceæ.*

G. lactiferum is the Cow Plant of Ceylon, the milk of which is used as food by the natives. The species are green-house evergreen twiners, producing clusters of yellow flowers from the axils of the leaves. They are allied to the *Stephanotis*, and require the same treatment.

Gymnocla'dus. Kentucky Coffee Tree. From *gymnos*, naked, and *klados*, a branch; in reference to the soft young wood, devoid of buds. Nat. Ord. *Leguminosæ.*

G. Canadensis, the only species, is an ornamental, hardy, deciduous tree, growing fifty to sixty feet high. It is one of our most beautiful shade trees, and is planted to a considerable extent on the streets in Washington, D. C.; it is also valuable for its hard tough timber. The fresh leaves, macerated and sweetened, are occasionally used as a poison for house-flies; the seeds were used formerly as a domestic substitute for coffee. Common from New York, south and west.

Gymnogra'mma. From *gymnos*, naked, and *gramma*, writing; in reference to the spore cases. Nat. Ord. *Polypodiaceæ.*

A genus of very beautiful Ferns, requiring the warm green-house to grow them. In some of the species the under surface of the fronds is profusely covered with a rich yellow or white farinose powder, which gives them the name of Gold or Silver Ferns; they are frequently seen in cultivation on account of the beauty of their fronds. This genus contains two of the very few known annual Ferns, *G. chærophylla*, a West Indian plant, and *G. leptophylla*, which is found scattered over nearly the whole of the temperate regions of the globe.

Gymnosperm. Bearing naked seeds.

Gymnosta'chyum. From *gymnos*, naked, and *stachys*, a spike; probably on account of the absence of the bracteoles. Nat. Ord. *Acanthaceæ.*

A genus of ornamental evergreen erect herbs, natives of the East Indies, and the Malayan Archipelago. The leaves of some of the species are beautifully marked. *G. venusta* is in cultivation under the name of *Justicia venusta.* Fittonia has been placed under this genus by some authors.

Gymnothe'ca. Derivation of name not given. Nat. Ord. *Polypodiaceæ.*

A small genus of noble green-house ferns, formerly included in the genus *Marratia.* *G. Raddiana*, a native of Brazil, is a very ornamental fern, requiring a warm house and moist atmosphere for its development.

Gy'mnothrix. A genus of grasses, now united with *Pennisetum.*

Gyne'rium. Pampas Grass. From *gyne*, female, and *erion*, wool; the stigmas being wooly. Nat. Ord. *Graminaceæ.*

A genus of three species of hardy or nearly hardy ornamental grasses, natives of tropical and sub-tropical America. *G. argenteum*, the Pampas Grass, so called from its being found covering the vast plains or pampas of South America, is the best known species and forms a most noble and beautiful plant, growing from four to fourteen feet high according to the strength of the plant, the soil or location. There is reason to believe that some varieties are better in habit than others and flower earlier. In such cases it would be better to divide them than to trust to seedlings. There are a number of varieties, some of a delicate rosy color, one variegated, and several dwarf and neat in habit. If convenient, they should have a sheltered position on the lawn or in the flower garden so as to prevent as much as possible the constant searing away of the foliage which occurs whenever the plant is much exposed. Its bright silvery plumes also show off much better when backed up with shrubs or some of the finer evergreens. It should be planted about the beginning of April and mulched with rotted manure, watered copiously in hot dry weather. This splendid Grass is not sufficiently hardy at the north without a mulching of dry leaves or litter around the roots. The clumps can be taken up in the fall, and kept in any convenient place away from frost during winter. With the best possible care and culture there cannot be produced such magnificent plumes either north or south, as are grown in southern California, where the plumes are grown largely for the northern and European markets. This species was first introduced in 1848. *G. jubatum* is very well spoken of, but as yet has not been tried much except in certain favored spots. The leaves resembles those of *G. argenteum*, but are of a deeper green, and droop elegantly at their extremities. From the center of the tuft and exceeding it by two or three feet, arise numerous stems, each bearing an immense loose panicle of long filamentous silvery flowers of a rosy tint with silvery sheen. It is a native of the republic of Ecuador and blooms earlier than *G. argenteum.*

GYR

Gynu'ra. From *gyne*, female, and *oura*, a tail; the stigma being elongated and hispid. Nat. Ord. *Compositæ.*

A genus of green-house herbaceous perennials, numbering about twenty species, the most of which are worthless, weedy plants, natives of the East Indies. *G. aurantiaca*, has brilliant orange-colored flower-heads, and the leaves and stems covered, over their entire surface, with small hairs of a rich plum-color, more especially the young leaves surrounding the flower-heads. It was thought to be a rival for the Coleus for bedding purposes, but rusts badly in our dry atmosphere and hot sun; it is easily increased by cuttings.

Gypso'phila. From *gypsos*, chalk, and *phileo*, to love; in reference to the soil most suitable for them. Nat. Ord. *Caryophyllaceæ.*

The species of this genus, natives of various parts of Europe and Asia, are characterized more by the grace than by the striking beauty of their flowers. The flowers are small, but are produced in great numbers in loose, graceful panicles. They are plants that are easily cultivated, and are propagated by division and seeds, the latter in the open ground in spring. The flowers of the species are useful in making up in dried bouquets, as they retain their color perfectly during winter. They are also well adapted for rock-work.

Gyrate. The same as Circinate (which see); curled inward like a crozier.

Gyrose. Turned round like a crook.

H.

HAB

Habena'ria. Rein Orchis. From *habena*, a rein or thong; referring to the long, strap-shaped spur. Nat. Ord. *Orchidaceæ.*

A well-known and somewhat extensive genus of terrestrial Orchids, pretty generally distributed. Our native species have very curiously-shaped flowers, which are generally yellow, but sometimes purple, and occasionally white. They grow well in moist, shady situations. Several of the species are to be found in marshy places on the south side of Long Island.

Habe'rlea. Named after *Karl Haberle*, Professor of Botany at Pesth. Nat. Ord. *Gesneraceæ.*

H. rhodopensis, the only species, is an elegant little hardy herbaceous perennial, not unlike a miniature Gloxinia. Flowers pale lilac, drooping. Admirably adapted for pot or cold-frame culture. Introduced from Roumelia in 1880.

Habit. The general appearance of a plant; its manner of growth, without reference to details of structure.

Habitat. The situation in which a plant grows in a wild state.

Habra'nthus. From *habros*, delicate, and *anthos*, a flower. Nat. Ord. *Amaryllidaceæ.*

Very handsome South American bulbs, which like the rest of the order, should have a decided season of rest. They grow best in a rich soil composed of loam, rotted manure, and sand, should be well-drained and have plenty of water when growing or flowering. These plants are found growing in dry, gravelly places, and are half hardy. They will winter in a cold frame with slight protection; introduced in 1821. A number of the plants, formerly included in this genus, are now referred by the authors of the "Genera Plantarum" to *Hippeastrum* and *Zephyranthes.*

Habrotha'mnus. From *habros*, gay, and *thamnos*, a shrub. Nat. Ord. *Solanaceæ.*

A genus of Mexican shrubs, closely allied to *Cestrum*, and one of the gayest productions of that country. The panicles of red or purple flowers are borne in abundance, and justify the name applied to them. They are propagated by cuttings and were first introduced in 1844. Syn. *Cestrum.*

Hackberry. See *Celtis.*

Hackmatack. A local name for *Larix Americana*, the American or Black Larch.

Hacque'tea. In honor of *B. Hacquet*, a German botanist. Nat. Ord. *Umbelliferæ.*

H. Epipactis, the only species, is a hardy herbaceous perennial plant, of very dwarf habit, having digitate three-lobed leaves, and a single umbel of small yellow flowers. It is a native of the Alps, and, like most Alpine plants, difficult to manage here. Syn. *Dondia.*

Hæma'nthus. From *haima*, blood, and *anthos*, a flower; referring to the color of the spathe and filaments of some species. Nat. Ord. *Amaryllidaceæ.*

A genus of South American bulbous plants, producing large scarlet, orange, and yellow

HAL

flowers of very singular appearance. *H. coccinea*, a beautiful species, does well in the green-house and should be grown in sandy loam and leaf mould. It is a strong grower, requiring considerable room. After making its growth it requires a season of perfect rest, after which it throws up its flower stalk, and should have plenty of water. They grow in fall and winter, and rest during spring and summer. They are propagated by offsets, and were introduced in 1629.

Hæmato'xylon. Logwood. From *haima*, blood and *xylon*, wood; Logwood is well-known for its red color. Nat. Ord. *Leguminosæ.*

H. Campechianum, the well-known Logwood of commerce, is the only representative of this genus. It is a handsome evergreen tree, growing about forty feet high, with a trunk about a foot and a half in diameter. It was first found on the Bay of Campeachy, in Yucatan, whence its specific name. It is also found in other parts of Central America, and has been introduced into and become naturalized in many of the West Indian Islands. Its importance consist in its value as a dye-wood, for which purpose it forms an important article of commerce.

Hæmodora'ceæ. A natural order of perennial herbs with fibrous roots, sword shaped equitant leaves, and bearing wooly hairs or scurf on their stems, and flowers. Natives of the Cape of Good Hope, America and New Holland. The roots of some of them yield a red color, hence the name of the order. *Anigosanthus*, *Aletris*, *Barbacenia* and *Hæmodorum*, are well known genera.

Hæmodo'rum. Blood-root. From *haima*, blood, and *doron*, a gift; probably in reference to the roots serving as food for the natives of Australia. Nat. Ord. *Hæmodoraceæ.*

A genus of pretty green-house perennials, all natives of Australia, with fascicled tubers, and black, red, livid-green, or orange-colored flowers. Increased by division; first introduced in 1810.

Hairbell. See *Campanula.*

Hair Grass. See *Aira.*

Ha'kea. Named after *Baron Hake*, a German patron of botany. Nat. Ord. *Proteaceæ.*

A genus of green-house evergreen shrubs, containing more than a hundred species, all natives of New Holland. The flowers of nearly all are white, produced in axillary clusters. None of the species has sufficient beauty, either in flower or foliage, to give it a place in ordinary collections.

Hale'sia. Silver Bell, or Snowdrop Tree. Named after *Dr. Hales*, author of "Vegetable Statics." Nat. Ord. *Styracaceæ.*

A small genus of hardy deciduous shrubs or low-growing trees. One of the species, *H. tetraptera*, is found on the banks of the Ohio, from Virginia westward, usually in very poor, rocky soil. It is a free flowering shrub, or small tree with beautiful pure white, showy, drooping flowers, on long slender pedicels, much resembling the Snow-drop, whence its

name; the seeds are curiously winged. This species improves by cultivation, and thrives well in a poor soil, preferring one near water. It is readily increased by layering, or from seed.

Halimode'ndron. Salt-tree. From *halimos*, sea-coast, and *dendron*, a tree; referring to its native habitat. Nat. Ord. *Leguminosæ*.

H. argenteum, the only species, is a very hardy shrub with silvery hairy leaves and pinkish papilionaceous flowers produced in axillary peduncles in May or June. It is a native of Siberia, in dry salt fields. It is a very elegant shrub for a bleak seacoast, and will thrive better if a little salt is mixed with the soil where it grows. This species is sent out by nurserymen under its former name, *Caragana argentea*.

Halle'ria. Named after *Albert Haller*, author of several botanical works. Nat. Ord. *Scrophulariaceæ*.

A genus of ornamental green-house evergreen glabrous shrubs, mostly natives of the Cape of Good Hope. *H. lucida*, the African Honeysuckle, has large reddish drooping flowers, and is the species generally seen in cultivation. It was introduced in 1752, and is easily increased by cuttings.

Haloraga'ceæ. A natural order of herbs or under-shrubs, often aquatic, with alternate opposite or whorled leaves, and small, frequently incomplete flowers. They are found in damp places and slow streams, sometimes submerged, in all parts of the world. The order contains nine genera, and about eighty species. *Gunnera*, *Myriophyllum*, and *Hippuris*, are examples.

Hamamelida'ceæ. A small, natural order of shrubs or trees, with alternate, feather-veined leaves, and deciduous stipules, natives of subtropical Asia, south Africa, and North America. There are seventeen known genera, including *Hamamelis*, *Bucklandia*, and *Liquidambar*.

Hamame'lis. The Witch Hazel. From *hama*, together with, and *mela*, fruit; referring to the flowers and fruit being on this tree at the same time. Nat. Ord. *Hamamelidaceæ*.

H. Virginica is a native shrub, which will grow freely in any soil that is not too rich, though it prefers a dry stony gravel. It has the peculiarity of flowering during winter, beginning to expand its rich, deep yellow flowers just as its leaves are falling off, and dropping its flowers when its branches begin to be reclothed with leaves in spring. The shrub is celebrated for the extract distilled from its bark and roots. Its seeds contain a quantity of oil, and are edible, and a strong decoction of its leaves is said to be a cure for mad-dog bites.

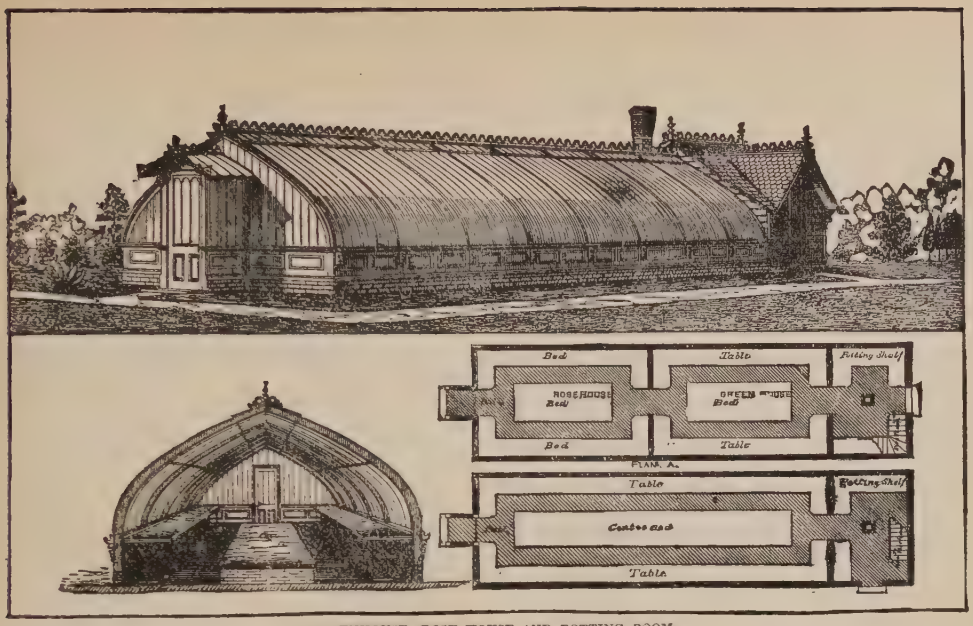
Hamilto'nia. Named after *William Hamilton*, an eminent American botanist. Nat. Ord. *Rubiaceæ*.

A genus comprising three or four species of ornamental, evergreen shrubs, natives of India, China, and the Indian Archipelago. Flowers white or blue, fascicled or umbellate: corolla, funnel-shaped. *H. suaveolens*, and *H. scabra*, are cultivated for the sake of their white fragrant flowers. Propagated by cuttings of the half-ripened wood.

Hand Glass. This is used to protect Melons, Cucumbers, Tomatoes, or other tender plants, on being set out early in the open ground. They are usually about twenty inches square, with a flat or conical top. A cheaper contrivance for the same purpose is a wooden frame of about the same size, having a small sash to fit the top. Thousands of these are used by the London and Paris gardeners to forward Cucumbers and Melons, but they are less used here than formerly, as the growing of vegetables in the Southern States for northern markets renders their use no longer profitable.

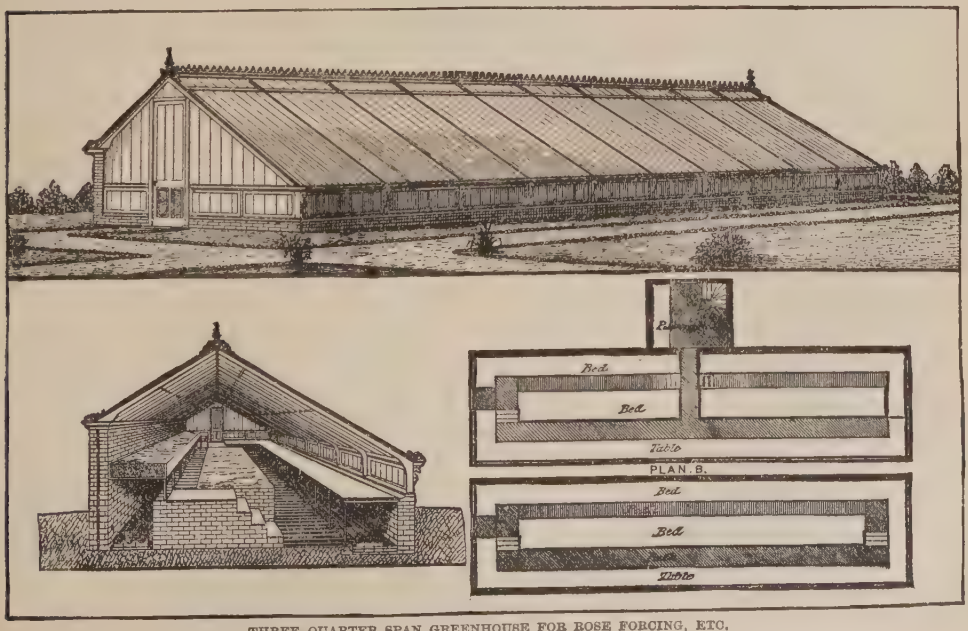
Hanging Baskets. These are made in a great variety of styles. Those known as "rustic" baskets are made with a wooden bowl to hold the soil, covered with roots of grotesque shapes. They are mostly made of Laurel (*Kalmia*) roots, which are well fitted to give the basket the necessary rough-looking outer covering. The bowls to hold the soil are from six to fifteen inches in diameter, and of a proportionate depth; the three handles form a triangle, meeting at the top, in which an eye is fixed by which to suspend it. Another form is made of wire, and these, when lined with moss to prevent the soil from being washed out, are far the best for the well-being of the plants. Many other beautiful forms are made from pottery ware to represent stumps, logs, rocks, and other natural objects. The plants used for filling hanging baskets of course vary in accordance with the purpose for which they are wanted. If for shady rooms, shady verandas, or shady places out doors, where there is not exposure to drying winds, Mosses (Selaginellas) and Ferns are sometimes used exclusively; or, for the same places, Ivies of all sorts, Tradescantias, Moneywort (Lysimachia), Vincas, Ivy-leaved Geraniums, Smilax, Climbing Fern, Fittonias, etc, are plants suited to droop over the sides, while, for the centre, upright plants such as Dracænas and Crotons of sorts, Caladiums, Marantas, Centaureas, Echeverias, Ferns, Sanchezia nobilis, or any other plants of striking form or foliage may be used.

For baskets to be placed in the sunlight, or partial sunlight, Coleus, Begonias, or bright Geraniums should be used as center plants, with Lobelias, Tropæolums, Petunias, Torenias, Peristrophe, Sedums, etc., to droop. It will be found of great benefit, after setting out the plants in baskets, to cover the soil with an inch or two of (Sphagnum) Moss, to prevent it drying up too quickly; for when the basket is hung in the air, of course it dries up much quicker than when placed on a shelf in the green-house or on the ground; and one of the main reasons for success with hanging baskets is the careful attention to watering, which is quickest and most thoroughly done by taking the basket down and immersing it in a tub of water, so that the soil is thoroughly soaked through. This will be necessary once, twice, or thrice a week, according to the position the basket is placed in, the condition of the atmosphere, or the state of the plants; for, if in a shaded position, it will require less water; if the atmosphere is damp, less; or if the plants have not attained vigor of growth, less; the opposite of these conditions, more. The soil used in

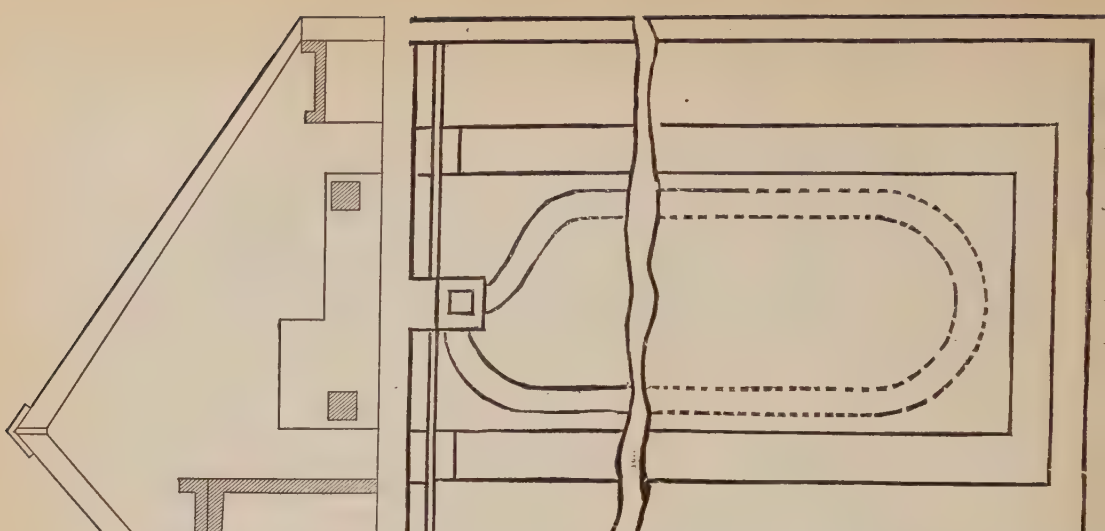


GREENHOUSE, ROSE HOUSE AND POTTING ROOM.

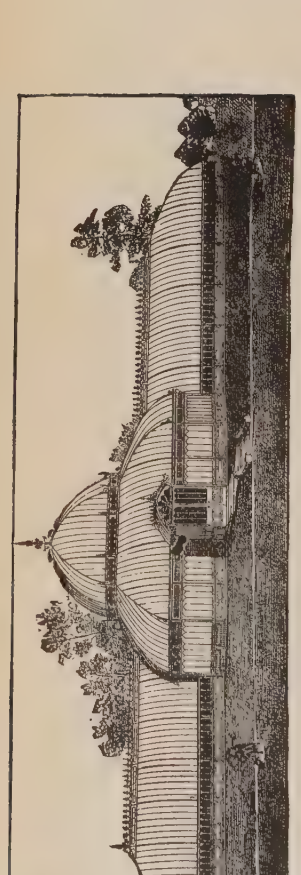
GREENHOUSE AND STOVE-PLANT-HOUSE WITH EQUAL SPANS.



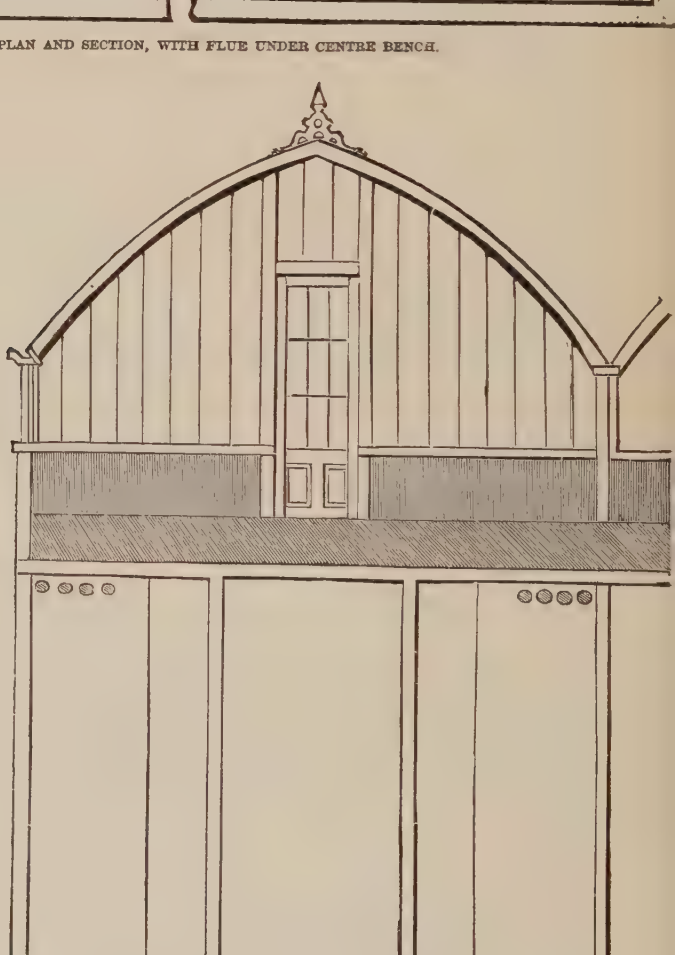
THREE-QUARTER SPAN GREENHOUSE FOR ROSE FORCING, ETC.



GREENHOUSE, GROUND PLAN AND SECTION, WITH FLUE UNDER CENTRE BENCH.



CONSERVATORY WITH WINGS ATTACHED.



GREENHOUSE OR GRAPERY (DETACHED), END VIEW AND PLAN.

hanging baskets need in no way differ from that used in the general culture of plants.

Haploca'rpa Leitchlini. A beautiful little south African composite plant in the way of *Gazania*. The plants are stemless, and form rosettes of Dandelion-shaped leaves, seven to nine inches long, glossy above, and thickly covered with white closely-pressed silky down, beneath. The flowers are two to three inches across, of a rich golden yellow color, backed with purplish brown. Seeds sown in spring, bloom from mid-summer until frost.

Hardenbe'rgia. Named after the *Countess of Hardenberg*, in Germany, sister to Baron Hugel. Nat. Ord. *Leguminosæ*.

A small genus of green-house evergreen climbers found in southern and western Australia. They are closely allied to *Kennedya*, and are desirable green-house plants from the profusion of their flowers, which are mostly purple, arranged in stalked racemes, and nearly as large as those of the pea. The plants are of easy culture and are readily increased by cuttings; introduced about 1800.

Hardhack. A common name for *Spiræa tomentosa*.

Hardy Annuals. This term applies to those plants that perfect their growth and ripen seed the same year they are sown in the open ground. See *Annuals*.

Hardy Herbaceous Plants. See *Herbaceous Plants*.

Hare-Bell. See *Scilla nutans*.

Hare's-Ear. *Bupleurum rotundifolium*.

Hare's-Foot. *Ochroma Lagopus*.

Hare's-Foot Fern. *Davallia Canariensis*.

Hare's-Tail Grass. *Lagurus ovatus*.

Haricot. The French name for Kidney Beans.

Harlequin Flower. African. The genus *Sparaxis*.

Harpa'lium. From *Harpalyce*, daughter of Lycurgus. Nat. Ord. *Compositæ*.

H. rigidus, the only species, is *Helianthus rigidus* of Gray, a coarse-growing perennial, with yellow flowers, common in the Western States.

Harpa'lyce. Named after *Harpalyce*, daughter of Lycurgus. Nat. Ord. *Leguminosæ*.

A small genus of handsome, erect, pinnate-leaved bushes from Mexico and Brazil. *H. Braziliana* bears handsome, scarlet pea-shaped flowers in a panicle toward the ends of the shoots. The Mexican species are smooth, and bear purple flowers. Propagated by cuttings.

Hart-Berries. *Vaccinium Myrtillus*.

Hartford Fern. See *Lygodium*.

Hart's-tongue Fern. See *Scolopendrium*.

Harvest-bells. *Gentiana Pneumonanthe*.

Hartwe'gia. Named after *M. Hartweg*, court gardener to the Emperor of Austria, and once a collector for the Royal Horticultural Society. Nat. Ord. *Orchidaceæ*.

A small genus of epiphytal Orchids, of but little interest, except in large collections. *H. purpurea* is a very pretty little plant, with spotted foliage, and long, slender spikes of purplish pink flowers. It is an almost constant bloomer, growing freely on blocks or cork in an ordinary green-house. It is a native of Mexico, introduced in 1837, and is increased by division of plants in the spring.

Hastate. Shaped like the head of a halbert; enlarged at the base into two lobes directed nearly horizontally, as in the leaf of Sheep's Sorrel.

Hautbois. *Fragaria elatior*. A species of Strawberry.

Hawkweed. See *Hieracium*.

Hawo'rthia. Named in honor of *A. H. Haworth*, a distinguished English botanist. Nat. Ord. *Liliaceæ*.

A pretty and curious genus of succulents, that offer many inducements to the admirers of that class of plants. They are natives of south Africa, and are commonly known as Aloes, from which they were separated. The plants are mostly small, but particularly interesting on account of their upright flowers, which are always gay, and the translucent leaves of some of the species. They were first introduced in 1727, require the same treatment as the *Aloe*, and are readily increased from suckers or from seed.

Hawthorn. See *Cratægus*.

Haylo'ckia. Named after *Mr. Haylock*, gardener to Dr. Herbert. Nat. Ord. *Amaryllidaceæ*.

A small bulb from Buenos Ayres, allied to *Zephyranthes*; flowers straw-colored, solitary. It is nearly hardy, the protection of a cold frame only being needed in this climate. Propagated by offsets. Introduced in 1829.

Hazel Nut. See *Corylus*.

Head. A close terminal collection of flowers, surrounded by an involucre, as in composite flowers.

Heal-all. *Collinsonia Canadensis* and *Rhodiola rosea*.

Heal-all, or **All-heal.** *Prunella vulgaris*, which see.

Heart of the Earth. *Prunella vulgaris*.

Heart's-ease. See *Viola tricolor*.

Heath, or **Heather.** A general name for the genera *Erica* and *Calluna*

American False. *Hudsonia ericoides*.
Irish. *Dabeocia* (*Menziesia*) *polifolia*.
Mediterranean. *Erica Mediterranea*. (*E. carnea*.)
Sea. *Frankenia lævis*.
Tree. *Erica arborea*.
Cypress. *Lycopodium alpinum*.

Heather. Scotch. *Erica cinerea* and *Calluna vulgaris*.

Heating by Flues. This is now but little done, except by beginners whose means are limited, or where a temporary green-house is erected. The objection to heating by flues is, that unless carefully constructed, there is danger from fire, or escape of gas injurious to the plants; still, many large green-house establishments are yet heated by flues, in which plants are grown quite as well as by hot-water heating. In constructing the furnace for flue heating, the size of the furnace doors should be from ten to sixteen inches square, according to the size of space to be heated; the length of the furnace bars from eighteen to forty inches; the furnace should be arched over, the top of the inside of the arch from sixteen

to twenty-four inches from the bars. The flue will always "draw" better if slightly on the ascent throughout its entire length; it should be elevated in all cases from the ground, on flags or bricks, so that its heat may be given out on all sides. The inside measure of the brick flue should not be less than 8x14 inches; if tiles can be conveniently procured, they are best to cover with; but, if not, the top of the flue may be contracted to six inches, and covered with bricks. After the flue has been built of brick to twenty-five or thirty feet from the furnace, cement or vitrified drain-pipe, seven, eight, or nine inches in diameter, should be used, as they are not only cheaper, but radiate the heat quicker than the bricks; they are also much easier constructed and cleaned. Care should be taken that no wood-work is in contact with the flue at any place. We have known cases where wood-work has caught fire after the house had been in operation for years; but an unusually strong draft intensified the heat, and the charred timber ignited and totally destroyed the green-house and its contents. It should be taken as a safe rule, that wood-work should in no case be nearer the flue or furnace than eight inches. In constructing do not be influenced by what the mechanics will tell you, as few of them have any experience in such matters, and are not able to judge of the dangers resulting from wood-work being in close contact with heated bricks. The position in which the flue is placed in the green-house depends upon its size. Presuming that the green-house to be heated is an equal span of twenty feet wide by fifty feet long, the best way is to start the furnace at the north end, so that the flues will run under the center or middle bench, the top of the furnace being inside the green-house, the fire, of course, being applied in the shed outside. A comparatively new plan of constructing flues is to have the flue run to the end of the green-house, and, returning, connect with the chimney, which is placed on the top of the arch of the furnace. By this method, as soon as a fire is lighted in the furnace, the brick-work forming the arch gets heated, and at once starts an upward draft, which puts the smoke flue into immediate action and maintains it; hence there is never any trouble about the draft, as in ordinary flues, having the chimney at the most distant point from the furnace. It will be seen that by this plan we not only get rid of the violent heat given out by the furnace, but at the same time it insures a complete draft, and the heated air from the furnace is so rapidly carried through the entire length of the flue, that it is nearly as hot when it enters the chimney as when it left the furnace. This perfect draft also does away with all danger of the escape of gas from the flues into the green-house, which often happens when the draft is not active. Formerly the flues used to be run along one side or end of the green-house, emptying into a chimney placed there; but this method is rarely satisfactory, as the cold outside air, rushing down the chimney, throws back the heated air, particularly in high winds, so as to nearly destroy the heat; but by the method of constructing the chimney on the top of the arch of the furnace, and returning the flue back into it, no such difficulty can occur.

Heating by Hot-Beds. The preparation of the heating material for the hot-bed is a matter of importance. It should be manure fresh from the horse-stable, and when they can be procured, it is better to mix it with about an equal bulk of leaves from the woods, or refuse hops. If the weather is very cold, the bulk of manure must be of good size, from five to six wagon loads, thrown into a compact round heap, else the mass may be so chilled that heat will not generate. If a shed is convenient, the manure may be placed there, especially if the quantity is small, to be protected from cold until the heat begins to rise. The heap should be turned and well broken up before being used for the hot-beds, so that the rank steam may escape, and the manure become of the proper "sweetened" condition. It is economy of the heating material to use a pit for the hot-bed. This should be made from two to three feet deep, six feet wide, and of any required length. After the heating material has been packed in the pit to the depth of from twenty to twenty-four inches, according to the purpose for which it is wanted, or the season of the year (the earlier in the season the deeper it is needed), the sashes should be placed on the frame, and kept close until the heat generates in the hot-bed, which will usually take twenty-four hours. Now plunge a thermometer into the manure, and if all is right it will indicate 100° or more; but this is yet too hot as bottom heat for the growth of seeds or plants, and a few days of delay must be allowed until the thermometer indicates a falling of eight or ten degrees, when the soil may be placed upon the manure, and the seeds sown or plants set out in the hot-bed. Amateurs are apt to be impatient in the matter of hot-beds, and often lose their first crop by sowing or planting before the first violent heat has subsided. Another very common mistake is in beginning too early in the season. In the latitude of New York nothing is gained by beginning before the first week in March, and the result will be very nearly as good if not begun until a month later. There are two or three important matters to bear in mind in the use of hot-beds. It is indispensable for safety to cover the glass at night with shutters or mats until all danger of frost is over; for it must be remembered that the contents of a hot-bed are always tender, from being forced so rapidly by the heat below, and that the slightest frost will kill them. Again, there is danger of overheating in the daytime by a neglect to ventilate when the sun is shining. As a general rule, it will be safe in all the average days of March, April and May, to have the sash of the hot-bed tilted up from an inch to three inches at the back from 9 A. M. to 4 P. M. Much will, of course, depend upon the activity of the heating material in the hot-bed, the warmth of the weather, and the character of the plants in the bed, so that we can only give a loose general rule. Numbers of inexperienced amateur cultivators often lose the entire contents of the hot-bed by having omitted to ventilate their hot-bed, and on their return home from business at night find all the contents scorched up. Or the danger of the other extreme is, that the plants are frozen through neglect to cover them at night. A hot-bed

requires a certain amount of attention, which must be given at the right time, or no satisfactory results can be expected.

Heating by Hot Water. This is now the method in use in nearly all well-appointed green-house structures. But little detail need be given, as this branch of heating is done almost exclusively by firms who make a special business of it, and who generally understand the construction and requirements necessary in heating, better than those who employ them usually do; but there are some points which it is perhaps as well to state. In any section of the country where the thermometer falls below zero, if a green-house, ten feet high, twenty feet wide, and 100 long, is to be heated by hot water, and a night-temperature of sixty degrees is required, there should be not less than eight "runs" of four-inch pipes running the length of the house; if fifty degrees are required, six "runs" of pipe; if forty degrees, four "runs" of pipe. The styles of boilers in use are so varied that we forbear to give any one in particular a preference here. If estimated by the glass surface, one foot in length of four inch pipe is necessary for every three and one half square feet of glass surface, when the temperature is at ten degrees below zero, to keep a temperature of fifty degrees in the green-house. For small green-houses, or such as are attached to dwellings, a simple contrivance known as the Base-burning Water Heater is very convenient. The boiler takes up no more room than an ordinary stove, and the fire requires no more skill or attention than any ordinary base-burning stove, being fed by coal from the top. It can be left with safety ten or twelve hours without any attention. At present prices, a Base-burning Water Heater with pipes sufficient to heat a green-house 10x50 feet, will cost about $200, or for twice that size about $350.

Heating by Steam. Few green-houses are as yet heated by steam, though the cost of construction is much less, and it is also claimed that there is greater economy in fuel; but though we have had green-houses heated for the past forty years, both in Europe and America, by hot water, steam heating for glass structures has made little progress. It has been successfully done, however, both in Philadelphia, Chicago, and the vicinity of New York, and experiments with it on a large scale are now being tried in several parts of the country. We have but little doubt that in erecting green-houses on an extensive scale at one time it is economy to use steam heating; but nearly all such structures are progressive, a few being added each year, and the heating by the ordinary hot-water pipes is as yet believed by the uninitiated to be the safer mode. It must be some such reason as this, whether right or wrong, that has so long caused green-houses to be heated by hot water in this age of steam.

Hebecla'dus. From *hebe*, pubescence, and *klados*, a branch, in reference to the hairiness of the young shoots. Nat. Ord. *Solanaceæ*.

A genus of perennial herbs or sub-shrubs, natives of western tropical America. *H. biflorus* is an interesting green-house shrub with handsome drooping purple flowers. It was introduced from the Andes of Peru in 1884, and is propagated by cuttings of the half-ripened wood.

Hebecli'nium. A genus now included with *Eupatorium*.

He'ctea. Named after *J. H. G. Hecht*, a Prussian counsellor, who died in 1837. Nat. Ord. *Bromeliaceæ*.

A genus of pretty green-house plants, closely allied to *Dyckia*. The leaves are long, spiny, recurved, and crowded. They are all natives of Mexico. *H. Ghiesbrechtii* is the most ornamental and desirable species.

Hedeo'ma. Mock Pennyroyal. From *hedeoma*, the Greek name of Mint. Nat. Ord. *Labiatæ*.

The only species of interest in this genus is *H. pulegioides*, the American Pennyroyal, common in open, barren woods and fields. It has the taste and odor nearly of the true Pennyroyal (*Mentha Pulegium*) of Europe.

He'dera. The Ivy. The name appears to be derived from *hedra*, a Celtic word, signifying a cord; and the English name, Ivy, is derived from *iw*, a word in the same language, signifying green, from its being always green. Nat. Ord. *Araliaceæ*.

This well-known plant is what botanists call a rooting climber; that is to say, its stems climb up trees, walls, sides of dwellings, or any other suitable object which presents a sufficiently rough surface for their roots to take hold of; as, unless this is the case, the Ivy, whenever it is rendered heavy by rain or snow, falls down. Whenever, therefore, Ivy is wanted to cover smooth, newly-plastered walls, the Ivy should be nailed against them, or secured with copper wire. The Ivy is remarkable for undergoing a complete change in its leaves when it flowers. The barren, or creeping Ivy, which trails along the ground, and roots into it, rarely flowers, and its leaf is deeply cut; but the tree Ivy, or flowering part, rears itself on high, so as to be fully exposed to the light and air, and the leaves become of an oval shape. *H. Canariensis*, the giant, or Irish Ivy, as it is sometimes called, though it is a native of the Canaries, is hardier and grows much faster than the common kind; but the variegated kinds are tender, and grow much slower. Ivy requires a deep and somewhat light soil, into which its roots can penetrate easily; and when grown for any purpose in pots or boxes it should be abundantly supplied with water. Ivy is useful in all cases where a naked space is to be covered with green in a short space of time; and it is particularly valuable in town gardens, as it will bear the smoke and want of pure air in cities better than most other plants. It should, however, in all close and crowded situations, be abundantly supplied with water, and occasionally syringed over the leaves. The gold and silver varieties are very beautiful, especially the former, when grown against the chimney of a dwelling-house or green-house; but they, like nearly all variegated-leaved plants, are more tender, and require a higher temperature than the plain green-leaved kinds. Increased freely by cuttings.

Hedera'ceæ. A name given to the Nat. Ord. *Araliaceæ*.

Hedge Bindweed. *Calystegia sepium*.

Hedge-hog. *Ranunculus arvensis*.

HED

Hedge-hog Grass. See *Cenchrus.*

Hedge Mustard. *Sisymbrium officinale.*

Hedge Nettle. *Stachys sylvatica.*

Hedges. Many shrubs and plants are available for utilizing for hedges, which are often extensively planted in connection with gardens, either for boundary fences, screens, or wind breaks. These are generally selected to suit the special requirements for which the hedge is intended, or, perhaps, different soils or locations may have effect on the selection. The principal plants now used are (deciduous) Osage Orange, European and Californian Privet, Althæas, Lilacs and Japan Quince; Beech, Thorns of various sorts, Hornbeam, etc., are also excellent hedge plants, though of rather slow growth. Of evergreens, American and Siberian Arborvitæs, Retinosporas, and Hemlock make excellent hedges that stand cutting well, and can be kept to any desired height; Norway Spruce also, for a dividing fence or wind break, is unsurpassed.

Hedge Violet. *Viola sylvatica.*

Hedy'chium. Garland Flower. From *hedys*, sweet, and *chion*, snow; in reference to the sweet-scented, snow-white flowers of some of the species. Nat. Ord. *Zingiberaceæ.*

A beautiful genus, deserving a place wherever space can be afforded them in the hothouse. They will attain a height of from three to five feet, and flower profusely, fully proving the fitness of the term, "Garland Flower," applied to them. There are a large number of species, mostly from the East Indies. *H. Gardneriaum*, one of the most useful of these, grows from three to five feet high, bearing huge spikes of bright lemon-colored flowers, with long scarlet stamens and elegant Canna-like foliage. It is an admirable plant for outdoor decoration in summer, and the crowns may be lifted and stored in winter similar to those of the Canna or Dahlia. They are propagated by divisions of the plants before repotting in the spring.

Hedy'sarum. The French Honeysuckle. From *hedysaron*, the name of a papilionaceous plant described by Theophrastus. Nat. Ord. *Leguminosæ.*

This genus includes many species of handsome hardy annual and perennial plants, natives of Europe, north Africa, the mountainous parts of Asia, and North America. Their flowers are purple, white, and rarely yellow, borne in prominent racemose spikes. *H. coronarium*, the French Honeysuckle, the species most usually cultivated, is a perennial herb, with spikes of deep red flowers. There is also a white-flowered variety. *H. flexuosum*, a closely allied species from southern Spain, has red flowers, tinged with blue. They are all of easy culture in open, sunny gardens, and are readily increased by seeds.

Hedy'scepe Canterburyana. A name given to *Kentia Canterburyana.*

Hee'ria rosea. A synonym of *Heterocentron roseum.*

Hei'nsia. A genus of *Rubiaceæ*, including a few species of evergreen shrubs, natives of tropical Africa. *H. jasminiflora*, the only species yet introduced, is a beautiful, much branched, unarmed, glabrous shrub, with

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pure white Jasmine-like flowers. Propagated by cuttings; introduced in 1824.

He'lcia. From *helcium*, a horse-collar; in reference to the curious formation of the flowers. Nat. Ord. *Orchidaceæ.*

H. sanguinolenta, the only species, is a beautiful terrestrial Orchid from the Peruvian Andes. Its flowers are produced in great profusion on single stalks from the base of the bulbs; the sepals and petals yellowish, beautifully marked with reddish brown; lip large, white, marked with purplish crimson. It requires to be grown in a cold house, and is increased by division. Syn. *Tricopilia.*

Hele'nium. Sneeze Weed. Named after the beautiful *Helen*, the cause of the Trojan war. Nat. Ord. *Compositæ.*

A small genus of showy, hardy herbaceous plants, with a few hardy annuals. The flowers are mostly large and yellow, somewhat resembling those of *Rudbeckia*, which similarity prevents their introduction to the flower garden. *H. autumnale*, the only native species, popularly known as Sneeze Weed, is a showy plant, growing from two to three feet high. It is common southward.

Helia'nthemum. Sun Rose. From *helios*, the sun, and *anthemon*, a flower. Nat. Ord. *Cistaceæ.*

Low shrubs, generally used for planting on rock-work, and strongly resembling the Cistus or Rock Rose. As most of the species are rather tender, they require protection during winter. For this reason they are either grown in pots, which are placed on the rock-work among the stones, or taken up and repotted in winter, to be planted out again in spring. They are generally increased by seeds, which ripen in abundance.

Helia'nthus. The Sun Flower. From *helios*, the sun, and *anthos*, a flower; in reference to the common but erroneous opinion, that the flowers always turn their faces toward the sun. Nat. Ord. *Compositæ.*

An extensive genus of hardy annuals and herbaceous perennials. The annual of this name, *H. annuus*, though a native of Peru, is of the hardiest of its kind, as it only requires sowing in the open border. The flowers are immense in size, averaging a foot in diameter; color yellow with a dark disk. It is not, however, suitable for any situation, unless there be abundance of room, on account of the large size of its stalks and leaves. It is, however, much grown in marshy districts, because of its supposed virtue of absorbing malaria. Of the many varieties of this species, perhaps the finest are *H. globosus fistulosus*, and *H. Californicus*, both of which have very large, extremely double, globular flowers when fully developed. *H. tuberosus*, the well-known Jerusalem Artichoke is sometimes cultivated for its tubers, which are in considerable demand especially in Europe, for soups, etc. The name of Jerusalem Artichoke is considered to be a corruption of the Italian *Girasole Articocca* or Sun-flower Artichoke, under which name it is said to have been originally distributed from the Farnese garden at Rome soon after its introduction to Europe in 1617. The perennial kinds are quite hardy and many of them are very ornamental. *H. orygalis*, a species from Texas, forms a bush from six to ten feet in

height, with numerous narrow recurved leaves surmounted by large loose panicles of comparatively small bright yellow flower heads, forming when in bloom a veritable fountain of gold. It is one of the most striking and useful of autumnal flowering plants. *H. multiflorus plenus*, a variety of *H. decapetalus*, produces large, very double flowers, three to five inches in diameter, exceedingly showy and desirable. *H. rigidus* and several other species are well worthy of a space in a collection of hardy herbaceous plants.

Helichry'sum. Everlasting Flower. From *helios*, the sun, and *chrysos*, gold; in allusion to the brilliant flowers. Nat. Ord. *Compositæ*. Syn. *Elichrysum*.

The genus consists of annuals, hardy herbaceous perennials, and evergreen shrubs, the two latter rarely seen except in botanical collections. The common yellow Everlasting, *H. bracteatum*, is a hardy annual that only requires sowing in the open border. *H. bicolor* is a very slight variety of it, merely differing in having the outer petals tipped with copper color; but *H. macranthum* has white flowers tipped with pink, and is very handsome. This species is a native of the Swan River colony. It may either be sown in the open ground in April, to flower in autumn, or in a hot-bed in February to plant out in May. *H. orientale*, the Immortelle of commerce, a native of the Island of Crete, although known in Europe since 1629, was not generally cultivated before 1815. At present it is chiefly grown in the south of France, where the land gradually slopes to the Mediterranean. It comes to the greatest perfection in positions well exposed to the sun, and surrounded by dry stone walls, where it commences to bloom in June. It is propagated by division of the larger tufts, and thrives best in a light, stony or porous soil. The flowering stems are gathered before the flowers are fully expanded, by women, who make them up into small bundles which are usually placed to dry on the stone walls of the enclosure in which they grow. When properly dried, they are taken away by young girls who are employed to remove the downy covering from the stems. A pound weight of the dried plants contains about two hundred stems, each bearing on an average twenty flowers. Each tuft of the growing plants produces from sixty to seventy stems. An acre of ground contains about 16,000 tufts, which will annually yield from two to three tons weight of dried Immortelles, and a well-established and well-managed plantation will continue productive from eight to ten years. The flowers are sold either by the bundle or weight, the bundles ranging from three to six cents each, according to size, while, if sold by weight, the price varies from three to five dollars a hundred weight, according to the state of the market. The natural color of the flowers is a deep yellow, but the manufacturers of garlands, bouquets, wreaths, etc., dye large quantities of them in other colors also chiefly black, green, and orange-red. This last named color, said to be obtained from a preparation of borax, is very handsome, and is the favorite tint of the people of the south of Europe. Large quantities are also bleached white, with a preparation of chloride of lime, and with the natural yellow flowers and those that are dyed black are used to form the wreaths and other devices devoted to the dead. Those which are dyed of brighter colors are used, either alone, or mixed with natural flowers, for bouquets, or room decoration; in these, however, the Immortelle takes no prominent place among other flowers. Its great distinction from them seems to consist in its possession of those peculiarities of structure which have induced a nation of sentiment and refined taste to select it as the most fitting of all to fill the office and bear the title of "The Flower of the Grave." The manufacture of Immortelle wreaths in Paris for funeral decorations engages upwards of 1,500 persons. The Immortelles are gathered in August on the arid hills of central and southern France. They are brought to the market in their natural condition, and the yellow blossoms are dyed or bleached white, green or red, in readiness for All-Saints and All-Souls days, November 1st and 2d, when all good Parisians visit their relatives' graves. On these *fetes-des-morts*, the gates of the cemeteries are beset with dealers in wreaths, crosses, and headcrowns. At Pere la Chaise alone it is estimated that more than 200,000 persons visit the cemeteries, and the sale of Immortelle wreaths reaches about 25,000. The silvery-white "Cape Flower" of the florists is *Helichrysum vestitum* (syn. *Leucostemma*) introduced to cultivation from South Africa in 1774. Large quantities are imported every year from the Cape of Good Hope, the lovely silvery sheen of the flowers superseding in a great measure the French or German white Immortelles.

Helico'nia. From *Helicon*, a hill consecrated to the Muses; from its affinity to the genus Musa. Nat. Ord. *Scitamineæ*.

A genus of interesting plants from the West Indies and South America. Their fruit is eaten by the natives, though inferior to the Banana. It requires the same general treatment as the *Maranta*, but is too large for general green-house cultivation. Propagated by division of plant.

Helio'phila. From *helios*, the sun, and *phileo*, to love; referring to the sunny aspect where they delight to grow. Nat. Ord. *Cruciferæ*.

Beautiful little annual plants, natives of the Cape of Good Hope, generally with blue flowers, and very long, slender stems. The seeds should be sown on a hot-bed in February, and the plants planted out in a warm, open situation in May.

Helio'psis. Ox-eye. From *helios*, the sun, and *opsis*, like; in allusion to the appearance of the flowers. Nat. Ord. *Compositæ*.

A genus comprising about six species of hardy perennials, with rather large, golden-yellow flowers. The native species, *H. lævis*, is very showy and deserving of cultivation.

Heliotrope. See *Heliotropium*.

Heliotro'pium. Heliotrope. From *helios*, the sun, and *trope*, twining; in reference to the curled or twining flower branch. Nat. Ord. *Boraginaceæ*.

This genus of interesting plants consists of hardy and tender annuals and green-house shrubs. Of the latter *H. Peruvianum* is the

well-known Heliotrope, a general favorite from its delicious fragrance. It grows freely in the open border. After the first of September, and until killed by frost, the plant is a complete mass of bloom. It and its many varieties are also largely grown in the greenhouse for cut flowers in winter, and is easily increased by cuttings or from seed. Introduced from Peru in 1757.

Heli'pterum. From *helios*, the sun, and *pteron*, a wing. Nat. Ord. *Compositæ*.

An extensive genus, separated from *Helichrysum*, with which it was formerly classed. The species, commonly known as Everlasting Flowers, are tender annuals from South Africa, Australia, and Tasmania. The name "Everlasting Flower" is promiscuously applied to the plants of this genus and their allies. The arrangement of them in bouquets and floral designs is an extensive business in France and Germany. They grow freely from seed, and thrive best in a light, dry soil, made tolerably rich. Introduced from Swan River in 1863. Rhodanthe and Astelma are placed under this genus by some botanists.

Hellebore. See *Helleborus*.

White or Swamp. *Veratrum nigrum*.

Helle'borus. Hellebore. From *helein*, to cause death, and *bora*, food; in reference to its poisonous quality. Nat. Ord. *Ranunculaceæ*.

This genus consists of hardy herbaceous perennials, growing best under the shade of trees. The "Christmas Rose," *H. niger*, is one of the most interesting plants belonging to this genus, on account of its flowering in winter or very early in spring, before almost every other flower. If grown in a frame, it will be true to its name, and flower freely during the Christmas holidays. It is increased by division of the roots; introduced from Austria in 1596.

Helmet. The hooded upper part of some flowers, as in the Monkshood.

Helmet Flower. A common name applied to *Aconitum*, *Coryanthes*, and *Scutellaria*.

He'lmia. In honor of *Dr. C. Helm*, a German ecclesiastic. Nat. Ord. *Dioscoreaceæ*.

A genus of handsome climbers, allied to the *Dioscorea* or Yam, and requiring the same treatment.

Helo'nias. From *helos*, a marsh; habitat of the species. A genus of *Liliaceæ*, the only species, of which *H. bullata* is a pretty herbaceous perennial, flowering early in spring, found sparingly in boggy places from New Jersey to Virginia.

Hemero'calli'deæ. A sub-division of the natural order *Liliaceæ*.

Hemeroca'llis. Day Lily. From *hemera*, a day, and *kallos*, beauty; alluding to the beauty and duration of the flowers. Nat. Ord. *Liliaceæ*.

Strong perennial plants, with yellow or copper-colored flowers. They are perfectly hardy, and thrive best in a moist, shady situation. The more common sorts are unworthy of cultivation. *H. flava*, found from the south of Europe to Siberia and Japan, has beautiful clear yellow, very fragrant flowers, borne in clusters on tall scapes. If in a shady border they remain some time in flower. Propagated by division of the root.

Hemioni'tes. From *hemionos*, a mule; supposed to be barren. Nat. Ord. *Polypodiaceæ*.

A small genus of Ferns, with simple palmate fronds, natives of the tropics of both the New and Old Worlds. They are exceedingly interesting plants for the hot-house, where they must be grown. They are increased by division; introduced in 1798.

Hemite'lia. From *hemi*, half, and *telia*, a lid; in reference to the shape of the indusium. A genus of about thirty species of tree ferns, belonging to the Nat. Ord. *Polypodiaceæ*.

Natives of South America, and the West Indies. They are all strong growers making beautiful specimens, but require a large greenhouse or conservatory to give room for their proper development.

Hemlock. See *Conium maculatum*.

Water. *Cicuta virosa*, and *C. maculata*.

Spruce. See *Tsuga Canadensis*.

Hemp. The common name of *Cannabis sativa*, also applied to various valuable fibres employed for manufacturing purposes.

Bow-String of India. *Sanseviera Zeylanica*, and *Calotropis gigantea*.

Canada or Indian. *Apocynum cannabinum*.

East Indian. *Cannabis sativa*, and *Hibiscus cannabinus*.

Manilla. The fibre of *Musa textilis*.

Water. *Eupatorium cannabinum*, *Acnida cannabina*, and *Bidens tripartita*.

Hemp Nettle. *Galeopsis Tetrahit*.

Hemp Weed. Climbing. *Mikania scandens*.

Hen and Chicken Daisy. See *Bellis perennis*.

Hen and Chickens. A popular name for one of the Houseleeks, *Sempervivum soboliferum*.

Henbane. See *Hyoscyamus*.

Henna Plant. *Lawsonia alba*.

Hep, or Hip. The fruit of the Dog Rose, *Rosa canina*, and other species of *Rosa*.

Hepa'tica. From *hepaticos*, relating to the liver; referring to the lobed leaves. Nat. Ord. *Ranunculaceæ*.

A small genus of hardy herbaceous perennials, one of our earliest "wild flowers," and very common in the woods throughout the Eastern and Northern States. It succeeds well in a shady border.

Herac'leum. Cow Parsnip. From *heracles*, a plant consecrated to Hercules. Nat. Ord. *Umbelliferæ*.

A genus of large, coarse-growing, hardy perennials and biennials, bearing large umbels of white flowers. They are all too weedy in appearance for the flower garden, being suitable only for large masses in rocky places difficult to cultivate.

Herb. A plant that does not possess a woody stem.

Herbaceous. Merely green, or thin green and cellular, as the tissue of membraneous leaves. Also producing an annual stem from a perennial root.

Herbaceous Plants, Hardy. W. Robinson in "Hardy Flowers," London, 1888, says: "The culture of the finest hardy perennials need not interfere in the slightest degree with that of bedding plants, or anything else—indeed it would enhance the beauty of all, and in almost every garden there is, goodness knows, an abundance of room for improve-

ment of this kind. To discuss the subject from the basis of the "mixed border," is completely to beg the question, and in most cases when people discuss this question, the old mixed border seems to represent their ideal of the highest beauty to be attained by the use of the hardy herbaceous and alpine flora of our gardens. To me it has a very different and a very much wider and nobler aspect. I have been somewhat surprised that people have spoken so encouragingly of the matter, considering their point of view. During the past eight or nine years I have sought after hardy plants of all kinds unremittingly, and previous to that I had seen a few good old-fashioned mixed borders; but at no time have I ever seen anything in this way that displayed a tithe of the beautiful plants which it might have had, or that was in any way worthy of a beautiful garden. Assuredly a well arranged mixed border would be one of the most interesting things ever seen in any garden. But it is not alone in that way that the plants under discussion may be made available. Many combinations of the utmost beauty and which have not yet been attempted in gardens, are quite possible with them, and very few have any idea of the many divers ways in which they may be cultivated, so as to attain the happiest results." A collection of hardy plants is most interesting, and should form a feature in every garden. Their treatment is of the easiest description, provided due preparation is made for their reception, and ordinary attention bestowed afterwards in keeping the borders cleaned, and the plants tied up to protect them from rough winds. Some sorts are well adapted for massing in large or small beds, the majority however, most suitable for cultivation in private gardens may be better arranged in mixed borders, reserving the dwarf and more delicate sorts for special culture in the rock-garden. A general display at any particular season is not usually the rule with a varied collection of herbaceous plants, yet their flowering period extends with one or another genus nearly throughout the year; spring and autumn being the seasons when most are represented, their requirements being more fully met by a cooler temperature and moister atmosphere than those experienced in summer. Mixed borders, groups and beds of the finer perennials may be much improved by being varied with tufts of the finer ornamental grasses, *which see*. Various select perennials, grown in quantity, afford an invaluable supply of cut flowers especially in early autumn; a large number also of the bulbous section, flower very early in spring, and are additionally attractive and useful on that account. The majority of hardy plants may be readily raised from seed, sown outside after the first of April, when germination is tolerably certain; a large proportion however may be readily propagated by division on the commencement of the new growth in spring.

The following selection embraces many of the most desirable species and varieties; as a guide in planting we give the color and the average height in feet:

Achillea Eupatorium, bright yellow, 4 ft.
Millefolium roseum, rose, 2 ft.
Ptarmica fl. pl., double white, 1 ft.
tomentosa, bright yellow, 1 ft.

Aconitum Californicum, blue, 2 to 3 ft.
Japonicum, flesh color, 6 ft.
Napellus, blue, 3 to 4 ft.
variegatum, blue, 3 to 4 ft.
Acorus Japonicus variegata, 1½ ft.
Adonis vernalis, yellow, ¾ to 1 ft.
Ægopodium podograria variegata, white, 1 ft.
Æthionema grandiflora, rose, 1½ ft.
Ajuga reptans, blue, ¾ ft.
reptans variegata, blue, ¾ ft.
Allium Moly, yellow, 1 ft.
Alyssum saxatile, yellow, 1 ft.
Amsonia salicifolia, blue, 2 ft.
Anchusa Italica, bright blue, 3 ft.
Anemone Japonica, rosy carmine, 2 ft.
Japonica alba, white, 2 ft.
Anthemis tinctoria, yellow, 1½ ft.
Anthericum Liliastrum, white, 1½ ft.
Aquilegia cœrulea, blue and white, 1 ft.
chrysantha, yellow, 2 ft.
The various varieties of A. vulgaris, both double and single, height 2 to 3 ft.
Arabis albida, white, ½ to ¾ ft.
albida variegata, white, ¾ ft.
Armeria vulgaris, or maritima, the variety called "Crimson Gem," bright rose, 1 ft.
Asclepias tuberosa, orange, 2 ft.
verticillata, white, 1½ ft.
Asperula odorata, white, 1 ft.
Aster prenanthoides, light blue, 3 ft., and many others of our native species.
Astilbe Japonica (Spiræa), white, 1 ft.
Aubretia, several species, light purple, very dwarf.
Baptisia Australis, blue, 2 to 3 ft.
Betonica grandiflora, purple, 2 ft.
Bocconia cordata, buff-color, 5 to 6 ft.
Boltonia latæsquama, light blue, 3 ft.
Campanula. The species of this genus are all well worthy of cultivation.
Centaurea montana, purple, 1 ft.
Centranthus ruber, and its white variety, 2 ft.
Cerastium tomentosum, white foliage and flowers, very dwarf.
Chrysopsis Mariana, yellow, 1 ft.
Clematis crispa, lilac, 4 to 6 ft.
erecta, white, 3 ft.
Colchicum autumnale, pink, 1 ft.
Commelina cœlestis, blue, 1 ft.
Convallaria majalis (Lily-of-the-Valley).
Coreopsis auriculata, yellow, 2 to 3 ft.
lanceolata, yellow, 2 ft.
tenuifolia, yellow, 1½ ft.
Coronilla varia, rose and white, 2 to 3 ft.
Corydalis nobilis, yellow, 1 ft.
Cypripedium spectabile, and other species.
Delphinium cœlestinum, light blue, 4 ft.
formosum, blue and white, 3 ft.
nudicaule, scarlet, 2 ft.
Wheelerii, blue and purple, 4 ft.
Dianthus plumarius, light purple, 1 ft.
Dicentra eximia, pink, 1½ ft.
spectabilis (Dielytra), pink, 2 ft.
Dictamnus Fraxinella, pink, 1½ ft.
Fraxinella alba, white, 1½ ft.
Dodecatheon Meadia, etc., pink and yellow, 1 ft.
Doronicum Caucasicum and other sorts, yellow, 2 ft.
Dracocephalum, several species, blue, 1 to 2 ft.
Echinacea purpurea, red, 3 to 4 ft.
Echinops sphærocephalus, light blue, 3 ft.
Eomecon chionantha, white, 1 ft.
Epilobium augustifolium, crimson, 3 to 6 ft.
Epimedium alpinum, red, 1 ft.
violaceum, white and violet, 1 ft.

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Eranthis hyemalis, yellow, ½ ft.
Eryngium amethystinum, light blue, 3 ft.
Euphorbia corollata, white, 1½ ft.
Funkia lanceolata, lilac, 1½ ft.
ovata marginata, blue, 1½ ft.
subcordata, white, 2 ft.
Galium mollugo, white, 3 ft.
Geranium pratense, light purple, 2 ft.
Geum coccineum plenum, scarlet, 2 ft.
Gillenia trifoliata, light red, 1 to 2 ft.
Glaucium corniculatum, yellow, 2 ft.
Gypsophila paniculata, white, 3 ft.
Harpalium rigidum, yellow, 3 ft.
Helianthus multiforus, yellow, 4 ft.
orgyalis, yellow, 6 ft.
Helleborus niger, white, ½ ft.
Hemerocallis flava, yellow, 2 ft.
rutilans, orange-red, 2 ft.
Kwanso fl. pl., orange-red, 2 ft.
Hesperis matronalis, purple and white, 1½ ft.
Hibiscus grandiflora, white and rose, 4 to 5 ft.
Hyacinthus candicans, white, 4 ft.
Iberis corræfolia, white, 1 ft.
Gibraltarica, rosy-white, 1 ft.
sempervirens, white, ¾ ft.
Iris fœtidissima variegata, bluish, 1½ ft.
Germanica, many sorts, 1½ ft.
Kæmpferii, many sorts, 2 ft.
pumila, purple and white, ½ ft.
Lamium maculatum, purple, ¾ ft.
Lathyrus platyphyllus (varieties), 6 ft.
Liatris pycnostachys, purple, 3 ft.
spicata, purple, 2 to 3 ft.
Libertia ixioides, white, 1½ ft.
Lilium, many sorts, 1 to 5 ft.
Lobelia cardinalis, scarlet, 2 ft.
Lotus corniculatus, yellow, very dwarf.
Lupinus polyphyllus, blue, 1 ft.
Lychnis Chalcedonica fl. pl., scarlet.
Chalcedonica alba, white, 3 ft.
Lysimachia clethroides, white, 2 feet.
nummularia, yellow, very dwarf.
vulgaris, yellow, 2 ft.
Lythrum salicaria, reddish-purple, 2 to 5 ft.
Mertensia virginica, blue and red, 1½ ft.
Monarda didyma, scarlet, 2 ft.
Bradburiana, purple, 2 ft.
Myosotis palustris, light blue, ¾ ft.
Narcissus, many sorts, 1 ft.
Œnothera Fraseri, yellow, 2 ft.
riparia, yellow, 1 ft.
Missouriensis, yellow, ¾ ft.
Omphalodes verna, blue, ½ ft.
Papaver orientale, scarlet, 4 ft.
Phlox subulata, purple; reptans, reddish-purple, and other dwarf sorts.
Garden hybrids of P. decussata, etc.
Platycodon grandiflorum, blue, 1½ ft.
grandiflorum album, white, 1½ ft.
Pœonia officinalis, many varieties and colors, 2 ft.
tenuifolia fl. pl., crimson, 1 ft.
Polemonium cœruleum and reptans, blue, 1 ft.
Polygonum cuspidatum, syn. P. Sieboldii, white, 4 ft.
Pyrethrum roseum and other species, 1½ ft.
Ramondia Pyrenaica, light purple, dwarf.
Ranunculus aconitifolius fl. pl., white, 2 ft.
acris fl. pl., yellow, 2 ft.
Romneya Coulteri, white, 5 ft.
Rudbeckia triloba, and other species, yellow, 2 to 3 ft.
Salvia pratensis, blue, 1½ ft.
Sanguinaria Canadensis, white, ½ ft.
Saponaria ocymoides, pink, dwarf.

HER

Saxifraga crassifolia, red, 1 ft.
Sedum, many sorts, principally dwarf.
Sempervivum, many sorts.
Silene alpestris, rose, ½ ft.
viscosa fl. pl., deep pink, 1 ft.
Spiræa Aruncus, white, 4 ft.
Filipendula fl. pl., white, 1 ft.
lobata, red, 2 ft.
palmata, red, 2 ft.
Ulmaria, white, 1 ft.
variegata, white, 1 ft.
Stachys lanata, purple, 1 ft.
Symphytum asperrimum, bluish-purple, 2 ft.
officinale variegata, white, 2 ft.
Tradescantia Virginica, blue and white varieties, 2 ft.
Tricyrtis grandiflora, white and purple, 1½ ft.
Trifolium incarnatum, rose colored, 1 ft.
rubens, purplish red, 1 ft.
Trillium grandiflorum, white, ½ ft.
Tunica saxifraga, red, dwarf.
Valeriana officinalis, white, 3 ft.
Veronica spicata, blue and other sorts.
Vinca minor, white and blue varieties, dwarf.
Viola, many sorts and colors, ½ ft.
Yucca filamentosa, white, 5 ft.

Herbarium. The *Herbarium* or *Hortus Siccus*, is a collection of dried specimens of plants, named and systematically arranged. It is indispensable to the student, as well as to the working botanist. Beginners in the study should possess, or have access to an herbarium, which should contain specimens representing all the natural orders, and as many of the genera and species of the plants of his immediate vicinity or district as possible. An herbarium, however, may be restricted to a particular family of plants, made the object of special study.

There has been considerable difference of opinion as to the proper size of the sheets for the Herbarium. The principal British herbaria adopt the size of 16½ x 10½ inches, which is thought rather narrow, rarely permitting two specimens of the same species to be placed side by side. In the United States 16½ x 11¾ has been adopted, and which is, perhaps, the best to follow, though we think a size of 20 x 16 inches is not too large to handle for the genus covers, the species paper being one-quarter of an inch narrower.

Specimens intended to be dried should be gathered on a fine day; if wet with rain they are liable to lose their color, the great enemy to the preservation of which is *damp*. In readiness there should be six or eight pieces of stout book or millboard, say twenty inches long by fifteen broad, a good supply of old newspapers folded to about the same average dimensions; also a few quires of blotting paper, a few pieces of tissue paper cut to the size of one's hand, and half a dozen squares of cotton wadding cut to the same size as the boards. Using a board as a foundation, place upon it a couple of the folded newspapers, and then dispose the plant in the middle, letting it fall naturally, but keeping the leaves and other parts as little crumpled as possible; cover in turn with blotting paper, then newspapers, and so on till all are safely deposited. The extra boards are to interfere, if needful, the tissue paper is to lay, when necessary, over flowers of particular delicacy; the cotton wadding is to employ when the stem of

HÆMANTHUS.

HEDYSARUM.

HELIANTHUS GLOBOSUS.

HELICHRYSUM.

HELIOTROPIUM.

HELIANTHUS MULTIFLORUS.

HELLEBORUS NIGER (CHRISTMAS ROSE).

HIBISCUS SINENSIS.

HIBISCUS SYRIACUS.

HESPERIS (SWEET ROCKET).

HEMEROCALLIS FLAVA.

HELIPTERUM.

HIBISCUS CALIFORNICUS.

the specimen is inordinately thick, so that a vacuum would be caused if the wadding were not there. A stout board at the top completes the preparations. A weight of several pounds more or less, according to the height of the pile, should be placed on top for twenty-four hours, when on examination the specimens will be found to be quite flat but limp and full of moisture. Now shift them into blotting paper, with tissue paper where very tender, and newspapers between each as before. In a day or two the specimens should have a second shift, all the papers used being *perfectly dry* and *warm*. A third and fourth shift into *dry* and *warm* papers, will ordinarily suffice to dry the specimens thoroughly, and fix the colors. It is no advantage to use warm papers for the commencing process, which is merely one of compression. Drying rarely commences for at least two days, and the more rapidly this is accomplished the better the success in retaining the colors.

When perfectly dry, the specimens should be laid out upon half sheets of tolerably stiff paper, and the half sheets be placed within a whole sheet. If the specimens are likely to be often handled and examined, it is desirable they should be mounted. This is best accomplished by glueing bodily on the sheet with white glue, or by transverse strips of gummed paper. Sometimes it is preferable to keep the specimens loose. Inferior ones can then be superseded by better; the venation of the leaves can be scrutinized when there is need, and a vast amount of labor saved. When mounted, the name, date, and locality where gathered, should be written on the containing paper; if kept loose, the same particulars should be stated on a ticket and the ticket attached to the specimen. As soon as a number are got together, they should be sorted, according to their natural orders, a sheet being devoted to every order, with its name in bold writing on the outside. When the orders themselves become well illustrated, the genera should be isolated in a similar manner, and when a genus becomes well illustrated the particular species should have separate sheets. By this means continual expansion is provided for. "There is a place for everything, and everything in its place." The nomenclature and arrangement should be according to some published catalogue, the newer the better. Finally the sheets of specimens should be deposited in a suitable cabinet, or they may be wrapped in brown paper, marked outside as to the contents. This preserves them from dust, which is often a sad blemish to an Herbarium, where cleanliness ranks next to order and accuracy.

Everything that is interesting in economic botany, useful in medicine, employed in art or science, curious in structure, or in any way identified with floriculture, is worthy of preservation. The object of the Herbarium is to illustrate the plant in the most perfect manner possible. Such plants accordingly as grasses and ferns, should be procured at different stages. Cotyledons, root leaves, sprays showing plumules, others showing stipules; autumnal foliage, leaves bearing parasitic fungi, should all be treated as though they were flowers. Seed-pods likewise should be introduced and packets of ripe seed should be kept in envelopes. Tendril-bearing plants,

such as the Vetch, and twiners like the Hop, should be got while clinging to their prop, and the two be dried together. Thus we see the mode of life as well as the organs. Products also should be introduced, such as lace bark, and the bark of the paper Birch, rice paper, Brousonettia cloth, or anything that lies flat, and helps to interpret the plants. Never be content, except where unavoidable, with a fragment. Every specimen should be large and handsome, coextensive with the room given by the paper. Fragments, of course, are better than nothing, but they should be regarded as only specimens *pro tem.*

An Herbarium, therefore, is a life-long exercise in everything implied, in order and neatness, accuracy of scientific observation and discrimination, and in exact and logical mental work. It is an unfailing amusement; it is profoundly educational alike to one's self, and to others; it is a commentary on one's tastes, and a history of experience.

Herbe'rtia. Named after *Dr. Herbert*, Dean of Manchester, a distinguished investigator of bulbous plants. Nat. Ord. *Iridaceæ*.

Very pretty species from South America, nearly hardy, requiring only the protection of the frame. It does well grown in pots. The flowers resemble the Iris, and are of various colors, blue and white predominating. Propagated by offsets. Introduced in 1830.

Herb Christopher. *Actæa spicata*, and *Osmunda regalis*.

Herb of Grace, or Herb of Repentance. *Ruta graveolens*.

Herb Robert. *Geranium Robertianum*.

Herbs. In every garden a piece of ground should be specially devoted to Herbs, more especially to those of which only a few plants need be kept. Part of the space should also be devoted to the annual sorts in preference to growing them in various parts of the garden. It is also just the place for the orderly and systematic culture of all small salading, such as Mustard and Cress, a constant succession of young Onions, a row of Chives, and the cultivation of Radishes, etc., throughout the season. Parsley requires special attention, as it is always of great importance for garnishing. The following are among the most useful Herbs in cultivation for flavoring purposes: Angelica, Sweet Basil, Borage, Burnet, Caraway, Anise, Chervil, Chives, Coriander, Dill, Fennel, Horehound, Lavender, Rosemary, Sweet Marjoram, Mint, Parsley, Pennyroyal, Rue, Sage, Summer and Winter Savory, Tarragon, Thyme, and Wormwood.

Hercules Club. *Aralia spinosa*, and *Xanthoxylum Clava-Hercules*.

Herd's Grass. The New England name of *Phleum pratense*.

In Pennsylvania *Agrostis vulgaris* is commonly called Herd's Grass.

Herma'nnia. Named for *Paul Hermann*, at one time Professor of Botany at Leyden. An extensive genus of *Sterculiaceæ*, including about eighty species of twiggy undershrubs, having the stems and leaves more or less clothed with starry hairs. The pretty nodding, sometimes sweet scented, flowers, are pale yellow, orange, or reddish-colored, disposed in dense clusters, or loose racemes or panicles at the ends of the twigs. Three of the species

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are natives of Mexico and Texas, the rest are all African. Propagated by cuttings.

Hermaphrodite. Having both stamens and pistils in one bloom, as in most common plants.

Heron's Bill. See *Erodium.*

Herpe'stis. From *herpestes*, a creeping thing; in reference to the creeping stems. Nat. Ord. *Scrophulariaceæ.*

An extensive genus of herbaceous perennials, chiefly aquatics, common throughout all tropical countries. There are also several species found in marshy places in the Southern and Western States. The species are mostly uninteresting. *H. reflexa*, a species of recent introduction, is a valuable plant for the aquarium.

Herra'nia. Named after *Gen. Herran*, a President of the Republic of New Grenada. Nat. Ord. *Sterculiaceæ.*

This genus consist of three or four species of evergreen trees, natives of South America, and one from Australia. They have palm-like heads, composed of large digitate leaves. They are very showy, but too large for general green-house cultivation.

Hesperalo'e. From *hesperos*, western, and *Aloe*, alluding to the aspect of the plant, and its native habitat. Nat. Ord. *Liliaceæ.*

H. Zuccifolia is a very striking and interesting green-house plant, having a leafy stem, on a very short caudex. The pale rose-colored flowers are borne in loose racemes on a leafless scape, three to four feet high. It was introduced to cultivation from Texas in 1882. Syn. *H. Engelmanni.*

Hespera'ntha. Evening Flower. From *hesperos*, the evening, and *anthos*, a flower. Nat. Ord. *Iridaceæ.*

A genus of Cape bulbs closely allied to the *Ixia.* The species are remarkable for expanding their sweet-scented flowers in the evening; hence their name. The flowers are mostly white, sometimes stained on the outside with purple or brown. Culture same as *Ixia;* introduced in 1825.

He'speris. Rocket. From *hesperos*, the evening; the Rockets being sweeter toward evening. Nat. Ord. *Cruciferæ.*

These flowers, though very common, are rarely well grown, as they require a great deal of care to bring them to perfection. They are all perennials; and as soon as they have done flowering they should be taken up and transplanted into fresh and very rich soil, which must be of a light and friable nature. Thus treated, the double white and double purple varieties of *Hesperis matronalis* will attain extraordinary size, and will flower splendidly; they are propagated by seeds or division of roots.

Hesperosco'rdum. Literally, the Onion of the West; from *hesperos*, the west, and *skordon*, garlic. Nat. Ord. *Liliaceæ.*

A small genus of California bulbs, allied to the *Allium*, with large and showy flowers, blue and white. They have a strong smell of garlic, which is a barrier to their introduction to the flower garden. Syn. *Brodiæa.*

Hetera'nthera. From *heteros*, variable, and *anther*; the Anthers are variable. Nat. Ord. *Iridaceæ.*

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A genus containing about eight species of ornamental aquatic perennial herbs, of which one is African and all the rest American. Flowers blue or white, produced from a spathe in the axil of a sheathing leaf stalk. *H. reniformis*, the Mud Plantain, with roundish kidney-shaped leaves and white flowers, is not unfrequent by the muddy banks of streams in the Southern States. *H. limosum*, with blue flowers, is found from western Virginia to Illinois and southward.

Heteroce'ntron. From *heteros*, variable, and *kentron*, a sharp point. Nat. Ord. *Melastomaceæ.*

A genus of free-flowering under-shrubs from Mexico. There are but two species, one *H. album*, with white, the other, *H. roseum*, with crimson-purple flowers, produced in axillary or terminal clusters. They make very desirable plants for winter blooming, and are propagated by cuttings. Syn. *Heeria.*

Heuche'ra. Alum root. Named after *Professor Heucher*, a German botanist. Nat. Ord. *Saxifragaceæ.*

A genus of very handsome herbaceous perennials, natives of this country and Siberia. The leaves are entire, from the center of which the flower scape arises from one to three feet high, with terminal panicles of greenish or purplish flowers. The root of *H. Americana* is so astringent that it is called Alum-root; propagated by division of the roots in spring.

Hexace'ntris. From *hex*, six, and *centron*, a spur; alluding to two of its stamens having one spur each, and two of them two spurs each. Nat. Ord. *Acanthaceæ.*

A small genus of green-house evergreen shrubs, of climbing habit, with dentate leaves. The flowers are purple or yellow, produced in many flowered terminal or axillary racemes in June. They are natives of India, and are propagated by cuttings. This genus is now included by Bentham and Hooker under *Thunbergia.*

Hibbe'rtia. In honor of *George Hibbert*, a distinguished promotor of botany. Nat. Ord. *Dilleniaceæ.*

Green-house evergreen shrubs, from New Holland and the Cape of Good Hope. There are more than fifty species included in this genus. Most of them are small, heath-like, tufted shrubs, or of a slender trailing habit; a few are climbing shrubs. Their flowers are yellow, borne at the ends of the branches, and generally give out a very unpleasant odor. *H. dentata*, a climbing species, is one of the most showy, and grows six or eight feet high. *H. volubilis*, the largest species of the genus, has a stiff climbing stem and pale yellow flowers two inches across, but most disagreeably scented. Propagated from cuttings of half-ripened shoots in spring; introduced in 1823.

Hibi'scus. Virgil's name for the Marsh-mallow. Nat. Ord. *Malvaceæ.*

An extensive genus, consisting of annuals, perennials, and hardy and green-house shrubs. All the kinds bear very showy flowers, and deserve to be extensively cultivated. *H. rosa-sinensis pleno* produces large double flowers, scarlet, and yellow, or buff, requiring simple green-house treatment. A singular freak of this species is, that orange and crimson flowers are occasionally seen on the same plant.

Quite a number of varieties of *H. rosa-sinensis* have been introduced of late years that are much superior to the typical species. *H. Syriacus* (Althæa), one of our most beautiful hardy shrubs, the more valuable as it is a free flowerer, will grow almost anywhere, and propagates freely by seeds, layers and cuttings. There is a pretty variegated-leaved variety of *H. Syriacus*, quite hardy, introduced by the late Robert Buist, of Philadelphia, Penn. The varieties of this species are used for hedges in many places along our coast, where the soil is too poor for any other shrub to thrive. *H. Moscheutos* is abundant in marshy places along our coasts. The flowers are a light rosy-pink color, sometimes nearly white, five to six inches in diameter, borne in great numbers on a scape three to four feet high. This species improves in size of plant and color of flower by removing it from its habitat to a dry situation in the border. *H. Californica* is a strong-growing species, bearing immense pure white flowers, and is one of the most valuable plants of recent introduction. The perennials are propagated by seeds or division of roots. The annuals are showy and grow readily from seed. *H. esculentus*, or *Abelmoschus esculentus* of modern botanists, is the Okra of the gardens, a tender annual from Central America and the West Indies. In the latter it is known as Gombo, and is extensively grown for the seed pods, which are used as a vegetable. The unripe pods are added to soups to render them more mucilaginous. They are also pickled like capers, and make an excellent salad. Okra may be raised by sowing the seed in spring as soon as the ground is warm. The dwarf varieties are preferable, being more productive, and requiring less space for their development. The soil should be rich to make tender pods.

Hickory. See *Carya*.

Hiera'cium. Hawkweed. From *hierax*, a hawk; being supposed to sharpen the sight of birds of prey. Nat. Ord. *Compositæ*.

A large genus of free-flowering, handsome herbaceous perennials, quite hardy and well adapted for planting among rock-work, or near the front of large groups of mixed plants; the genus also contains a very beautiful annual suited for growing in masses; this is perhaps better known by the English name of the genus, Hawkweed. The flowers of nearly all the species are yellow, several of them are indigenous and common, but notwithstanding are well deserving the little attention necessary to keep them in the neat order requisite in the flower garden. Most species are from Central Europe, and have long been cultivated as garden flowers.

Hiero'chloa. Holy Grass, Vanilla Grass, Seneca Grass. From *hieros*, holy, and *chloa*, grass. Nat. Ord. *Graminaceæ*.

A small genus of grasses inhabiting high altitudes, both in this country and in Europe. The species have no agricultural value, as they produce but little herbage, and have very powerful creeping roots, which are very difficult to extirpate, making it troublesome in cultivated fields. *H. borealis*, having been dedicated to the Virgin Mary, is much used in Catholic countries for strewing before their churches. In Sweden it is hung over beds in the belief that it induces sleep, because of its sacred influence. In Iceland it is used to scent the clothes and apartments of the inhabitants. The scent emitted is very similar to that of the Sweet-scented Vernal Grass.

Hill. This is a term used to designate the place where Tomatoes, Corn, Potatoes, Melons, etc., are planted; and the use of the term often leads the novice to serious errors in planting, as it gives the impression that a hill or mound must be made to sow and plant on, and which is often done to the detriment of the crop, as in our hot and dry climate, if a mound of four or five inches is raised above the general level, the plants suffer often severely in dry weather. If a "hill" is formed at all, it should only be by drawing the soil up to the plant to support it after it has well started to grow; such a mound will then do less harm, as the foliage shades the ground. In planting then, particularly on light, dry soils, the "hills" for sowing or planting should be made nearly on the level surface.

Hilum. The scar produced by the separation of a seed from its placenta.

Hi'ndsia. Named after *R. B. Hinds*, a zealous botanist. Nat. Ord. *Rubiaceæ*.

Green-house evergreen shrubs from Brazil. Some of the species are plants of great beauty. *H. violacea* bears clusters of ultra-marine flowers two inches long, very showy. They are propagated by cuttings; introduced in 1844.

Hippea'strum. Knight's Star Lily. From *hippeus*, a knight, and *astron*, a star; referring to one of the species. Nat. Ord. *Amaryllidaceæ*.

This may, with justice, be termed the most noble and showy section of the family to which it belongs. The flowers are variously colored; some species have them entirely crimson, while others are white, abundantly streaked with red or crimson. The plants require the same treatment as Amaryllis. This genus was formerly classed with the Amaryllis, but was separated from it some years ago by the Rev. W. Herbert, who, in fact, reconstructed the whole family. They are, however, still classed by many under *Amaryllis* (which see), and are remarkable for the number of gorgeous and attractive hybrids and crosses that have been obtained by the skill and perseverance of the hybridist. Propagated by offsets. First introduced from Lima in 1836.

Hippo'mane. Manchineel or Manzanillo tree. From *hippos*, a horse, and *mane*, madness; alluding to the effects of the original plant. Nat. Ord. *Euphorbiaceæ*.

H. Mancinella, the only species is an evergreen one that grows to an immense size, and is very common in many of the West Indian Islands and in Venezuela and Panama, usually growing on sandy sea shores. The violent nature of the juice of the Manchineel tree has given rise, in the western hemisphere, to nearly as wonderful stories as those associated with the *Upas* tree in the eastern.

The fruit is beautiful, resembling an apple, but is a virulent poison. The whole tree abounds with a white milky juice, which is also of an acrid noxious quality. If a single drop of this juice drops on the skin, it causes

a sensation like the touch of a hot iron, and raises a blister on the part. The wood is beautifully variegated with brown and white, and is highly prized for furniture and ornaments. The workmen who fell the trees first kindle a fire around the stem, by which means the juice becomes so much thickened, as not to flow out when wounds are made with their axes. Whole woods on the sea coast of Martinique have been burnt in order to clear the country of such a dangerous plant. One of the most dangerous properties of this tree, is that of causing blindness, if by chance the least drop of the milk, or the smoke of the burning wood, comes in contact with the eyes. Dr. Seaman states that at Veraquas some of the ship's carpenters were blinded for several days from the juice getting into their eyes whilst cutting down the Manchineel trees, while he himself suffered temporary loss of sight from merely gathering specimens.

Hippo'phæ. Sea Buckthorn. From *hippos*, a horse, and *pho*, to kill; in reference to the supposed poisonous qualities of the seeds. Nat. Ord. *Elæagnaceæ*.

H. rhamnoides, is a strong-growing deciduous shrub or low-growing tree, with small foliage of a curious grey-green color, and yellow, minute flowers, succeeded by bright orange-colored berries. It is a native of the east coast of Great Britain, and very suitable for planting near the sea as a shelter. It grows satisfactorily even in positions that are occasionally drenched by the sea-spray. When in fruit, it is a very ornamental shrub.

Hippu'rus. Mare's Tail. From *hippus*, a mare, and *oura*, a tail; the stem resembles a mare's tail, from the crowded whorls of very narrow, hair-like leaves. Nat. Ord. *Haloragaceæ*.

A very curious aquatic plant, found sparingly in ponds and springs from New York to Kentucky and northward. Scientists say the plant absorbs a large quantity of inflammable air, which assists in purifying the putrid air of marshes. It is a favorite food of wild ducks.

Hirsute. Hairy; covered with somewhat soft hairs.

Hispid. Covered with long, stiff hairs.

Hoary. Covered with white down.

Hoary Pea. See *Tephrosia*.

Hobble-bush. A common name for *Viburnum latanoides*.

Hoe. This consists of the "draw" and the "push" or "scuffle" hoe. There are a great many modifications of these. For deep hoeing the steel-pronged draw hoe is the best implement, being much preferable to the blade draw hoe, as it not only pulverizes the soil better, but its points penetrate the soil easier, and the work is thus made much lighter for the operator. The blade draw hoe should never be used, except when the ground is overgreen with weeds (a condition of things which, if possible, should never be allowed), or to draw earth up to plants, such as Celery or Cabbages. After the ground is new planted, before it is allowed to get hard, the "scuffle" or "push hoe" is far more effective than the draw hoe, particularly between rows; nearly twice the amount of work can be done than with the draw hoe, but of

course that is simply stirring the surface; for deep cultivation, the steel-pronged hoe is the best implement.

Hoffma'nnia. A synonym of *Campylobotrys*, which see.

Hog Plum. See *Spondias*.

Hog-weed. A common name for *Ambrosia artemisæfolia*.

Hoi'tzia. A synonym of *Læselia*, which see.

Ho'lcus. From *helko*, to extract; the original plant was supposed to possess the power of extracting thorns. Nat. Ord. *Graminaceæ*.

A genus of grasses that have soft woolly herbage, mostly natives of Great Britain, and of but little value. *H. lanatus* is common in our moist meadows, having become naturalized from Europe; it is popularly known as Velvet Grass.

Holly. See *Ilex*.

Hollyhock. See *Althæa rosea*.

Holly, Sea. See *Erygnium*.

Holy Ghost Plant. See *Peristeria elata*.

Holy Grass. A name applied to *Hierocloa*, a genus of sweet-scented grasses, that are strewn before the church doors on saints' days, in the north of Europe. See *Hierocloa*.

Holy Rose. A name given to the Rose of Jericho, *Anastatica*.

Holy Thistle. See *Carduus*.

Holy Tree. A popular name for *Melia Azedarach*.

Homalome'na. From *homalos*, flat, and *mene*, moon; a translation of the native name of some of the species. Nat. Ord. *Aroideæ*.

A small genus of herbaceous plants, with heart or arrow-shaped leaves, and flowers resembling the *Richardia*. They are natives of China. *H. cordata* is occasionally grown in green-houses, and requires the same treatment as the *Richardia*. *H. aromatica* has an agreeable aromatic odor, and its root is supposed by the natives to possess medicinal properties.

Home'ria. From *homerio*, to meet; the filaments are connected in a tube around the style. Nat. Ord. *Iridaceæ*.

A small genus of pretty flowering bulbs from the Cape of Good Hope, and formerly included in the genus *Morea*. They succeed well in the open border, but require the protection of a frame during winter. Propagated by offsets, that should be taken off in September.

Honesty. See *Lunaria*.

Honey Bean. See *Robinia*.

Honey Flower. See *Melianthus*.

Honey Garlic. See *Nectaroscordum*.

Honey Locust. See *Gleditschia*.

Honey Plant. The genus *Hoya*.

Honeysuckle. The common name for the genus *Lonicera*.

Honey-wort. See *Cerinthe*.

Hoop Petticoat. A common name given to the genus *Corbularia;* also to *Narcissus bulbocodium*.

Hop. See *Humulus Lupulus*.

Japan. A popular name for *Humulus Japonicus*.

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Hop Hornbeam. See *Ostrya.*

Hop Tree. The popular name of *Ptelia trifoliata.*

Ho'rdeum. Barley. According to Bodæus, the name is derived from *hordus*, heavy; because the bread made from Barley is very heavy. Nat. Ord. *Graminaceæ.*

A genus of valuable, erect annual, rarely perennial grasses, natives of Europe, temperate Asia, northern Africa, and extra-tropical America. The most useful of the species is the common Barley, *H. vulgare*, a grain which has been the longest in cultivation, and is more generally used than any other. The Egyptians have a tradition that Barley was the first grain made use of by man, and trace its introduction to their goddess Isis. Pliny, in his Natural History, speaks of its great antiquity, but gives no account of its origin, which is as little known as that of Wheat. Of the kinds under cultivation, *H. vulgare* is the common four-rowed, *H. distichon*, the two-rowed, and *H. hexastichon* the Winter Barley, which has six rows of grain, each row terminating in a long beard. This is the species most generally cultivated in this country. *H. jubatum*, Squirrel-tail Grass, is a native species, and is common on the shores of the great lakes. It is often cultivated in collections of ornamental grasses.

Horehound. See *Marrubium vulgare.*

Horke'lia. Named after *J. Horkel*, a German botanist. Nat. Ord. *Rosaceæ.*

Hardy herbaceous perennials, found in California in 1826. They are desirable plants for the garden, bearing white flowers, and having finely cut foliage, like the Potentilla, to which it is allied. Propagated by seeds or division.

Hormi'num. From *horminon*, the Greek name. Nat. Ord. *Labiatæ.*

H. pyrenaicum, the only species is an elegant hardy, herbaceous perennial, with bluish-purple flowers. It is of easy culture, and is increased by seeds or divisions.

Horn. Any appendage which is shaped somewhat like the horn of an animal, as the spur of the petals in *Linaria.*

Horn-beam. See *Carpinus.*

Horned Poppy. See *Glaucium.*

Horn of Plenty. The common name of *Fedia Cornucopiæ.*

Horse Balm. See *Collinsonia.*

Horse Chestnut. See *Æsculus.*

Horse Mint. A common name for *Monarda punctata.*

Horse Nettle. A local name of *Solanum Carolinense.*

Horseradish. *Cochlearia armoracea.* This plant is a native of the marshy districts of Great Britain, whence it was introduced into our gardens at an early day, and from the gardens it has escaped into moist, waste places, in various parts of the country. The generic name is derived from *cochlear*, a spoon; from the spoon-like, or concave leaves of some of the species. As a condiment, the Horseradish is in general use, and is considered stimulating to the digestive organs.

This root is an important crop, upwards of five hundred acres of it being grown in the vicinity of New York alone, and for the last

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twenty years there has been nothing grown from which more profit as a second crop has been realized. It is always grown as a second crop in the following manner:

In preparing the roots for market during winter, all the small rootlets are broken off and reserved for planting, leaving nothing but the main root, which is usually from twelve to fifteen inches long, and weighing about three-quarters of a pound. The rootlets, or sets, are cut into pieces of from four to six inches in length, and from one-quarter to one-half an inch in diameter; these are tied in bundles of from fifty to sixty, the top end being cut square and the bottom end slanting, so that in planting there will be no danger of setting the root upside down; for, although it would grow if planted thus, it would not make a handsome root.

The sets, when prepared, are stowed away in boxes of sand, care being taken that a sufficiency of sand is put between each layer of bundles to prevent their heating. They may either be kept in the boxes in a cool cellar, or pitted in the open ground, as may be most convenient.

Horseradish is always cultivated as a second crop, and usually succeeds Early Cabbage, Cauliflower or Beets. Thus we plant Early Cabbage, lining out the ground with the one-foot marker; on every alternate line are first planted the Cabbages, which stand, when planted, at two feet between the rows, and sixteen or eighteen inches between the plants. We always finish our entire planting before we put in the Horseradish, which delays it generally to about 1st of May. It is then planted between the rows of Cabbage, and at about the same distance as the Cabbage is in the rows, giving about 12,000 or 13,000 plants per acre.

The planting is performed by making a hole about eight or ten inches deep with a long planting stick or light crowbar, into which is dropped the Horseradish set, so that its top will be two or three inches under the surface; if the sets should be longer the hole should be made proportionally deep, so that the top of the set is not nearer the surface than two or three inches; the earth is pressed in alongside the set, so as to fill up the hole, as in ordinary planting.

The main reason for planting the set so far under the surface is to delay its coming up until the crop of cabbage be cleared off. The Horseradish makes its main growth in the fall, so that it is no injury to it to keep it from growing until July; in fact, it often happens that by being planted too near the surface, or too early, it starts to grow so as to interfere with the Cabbage crop; in such cases, we have often to cut the tops off twice with the hoe before the cabbage is ready, but this does not injure it in the least.

It is a crop with which there is very little labor during summer; after the Cabbage has been cut off, the Horseradish is allowed to grow at will, and as it quickly covers the ground, one good deep stirring by hoe or cultivator is all that is required after digging out the Cabbage stumps.

When grown between Early Beets the culture is, in all respects, the same, only it is more profitable to have the rows of Beets only eighteen inches apart; this, of course, throws

the Horseradish nearer, so that when grown between Beets it should be planted at the distance of two feet between the plants in the rows, making about the same number of plants per acre as when planted between Early Cabbages.

This manner of growing Horseradish we claim to be a great advance on the methods generally practised. All American writers on the subject, that we have seen, follow in the same track, and recommend planting the *crowns*. This not only destroys the most saleable part of the root, but when planted thus, the crowns produce only a sprawling lot of rootlets which are utterly unsaleable in the market.

Horseradish Tree. See *Moringa.*

Horse-tail. The genus *Equisetum.*

Hortensis. Of or belonging to a garden; the word is often contracted thus: hort.

Hotei'a Japonica. A synonym of *Spiræa* or *Astilbe Japonica.*

Hottentot Bread. A South African name for *Testudinaria Elephantipes.*

Hottentot Fig. *Mesembryanthemum edule.*

Hotto'nia. Water Violet. Named after *P. Hotton*, a Dutch botanist. Nat. Ord. *Primulaceæ.*

Hardy aquatic or marsh plants. *H. inflata* is common in pools and ditches from New England southward. *H. palustris*, the Water Violet, is a singular and beautiful plant, common in pools in many parts of England. The leaves grow wholly under water; from them there arises a long flower stalk bearing a pyramid of blue or white flowers, which are disposed in whorls. It is a very interesting plant for the aquarium.

Houlle'tia. Named after *M. Houllet*, a French gardener. Nat. Ord. *Orchidaceæ.*

A small genus of very handsome epiphytal Orchids, natives of Brazil. The genus is related to *Stanhopea*, and requires the same treatment.

Hound's Tongue. See *Cynoglossum.*

Houseleek. See *Sempervivum.*

Housto'nia. Named in honor of *Dr. W. Houston*, an English botanist. Nat. Ord. *Rubiaceæ.*

This elegant genus of small flowering plants is found throughout the Northern and Western States. They are well adapted for flower borders, rock-work, or shaded beds, and thrive best in a moist situation. The colors of the flowers are white, blue and purple. Herbaceous perennials, popularly known as *Bluets*, and propagated by division of the roots.

Ho'vea. Named after *A. P. Hove*, a Polish botanist. Nat. Ord. *Leguminosæ.*

A genus of handsome, blue-flowered evergreen shrubs from New Holland. "*H. Celsii* (Syn. *H. elliptica*), one of the best known, is a beautiful green-house plant, flowering like most of the species, in the spring. This plant exhibits the peculiarity of the flower buds of the preceding year appearing at the base of those expanded during the present; a common condition of leaf buds, which are always visible the season preceding their expansion, but not frequently so with flower buds, which, though they may be formed several years

before their development externally, generally remain concealed till the period of their unfolding." The flowers are pea-shaped, axillary, on short peduncles. Propagated by seeds; introduced in 1818.

Hove'nia. In honor of *David Hoven*, a Senator of Amsterdam, who contributed to the success of the travels of Thunberg. Nat. Ord. *Rhamnaceæ.*

These are small fruit-bearing trees, growing to the height of eight or ten feet, and producing a fruit which is said to taste like the Bergamot pear. *H. dulcis*, a native of Japan, has been introduced into this country, and grown as an ornamental fruit-bearing tree. None of the other species are hardy.

Ho'wea. From Lord Howe's Island where only the genus is found. Nat. Ord. *Palmaceæ.*

This name is now generally adopted for the two palms introduced and cultivated under the names of *Kentia Belmoreana*, and *K. Fosteriana.*

Ho'ya. Wax Flower. In honor of *Thomas Hoy, F. L. S.*, gardener to the Duke of Northumberland at Sion House, England. Nat. Ord. *Asclepiadaceæ.*

The most common species, *H. Carnosa*, has curious, wax-like flowers, from which drops a sweet, honey-like juice. It is a hot-house climber, which requires a light rich soil, and is propagated by cuttings, which require an average temperature of not less than 75° to root freely. It is sometimes grown in greenhouses, in a warm situation, exposed to the sun. It makes an excellent plant for a warm sitting-room, as it grows freely without direct light. Introduced from Asia in 1802. The variegated-leaved variety is a very ornamental plant; *H. bella*, with beautiful waxy white flowers and dwarf shrubby slender habit, forms an excellent subject for a hanging basket in a warm green-house. There are many other species of much beauty, all requiring a warm plant-stove to bring them to perfection.

Huckleberry. Whortleberry. The popular names of the genus *Gaylussacia*, of which there are several species. *G. dumosa*, the Dwarf Huckleberry, *G. frondosa*, the Blue Huckleberry, and *G. resinosa*, the Black Huckleberry, are common throughout the United States, the latter being the *Huckleberry* of the Northern States.

Hudso'nia. False Heath. Named after *William Hudson*, author of "Flora Anglica." Nat. Ord. *Cistaceæ.*

A genus of bushy little heath-like shrubs, seldom a foot high, covered all over with small awl-shaped or scale-like persistent downy leaves, and bearing numerous small, but showy yellow flowers in May, crowded along the upper part of the branches. Found in dry sandy soil near the coast, from Maine to Virginia. From its resemblance when not in bloom to Heather (*Calluna vulgaris*), it is often taken for that plant.

Huge'lia. Named after *Baron Hugel*, of Vienna, Nat. Ord. *Polemoniaceæ.*

A small genus of hardy annuals from California with blue and yellow flowers, propagated by seeds. First discovered in 1833. This genus is now included under *Gilia.*

HUM

Huma'ta. Meaning unknown. Nat. Ord. *Polypodiaceæ.*

A small genus of dwarf evergreen ferns, allied to *Davallia.*under which genus they are now included by some authors.

Humble Plant. A name given to *Mimosa pudica.*

Hu'mea. Named after *Lady Hume.* Nat. Ord. *Compositæ.*

H. elegans, the only species, is an elegant biennial plant, which should be sown on a slight hot-bed in spring, then potted off and kept in the open air during summer, and in the green-house during winter, to be finally planted in the open border in May the second year. If the plants are repotted once or twice during the course of the first summer, always into only a little larger pots, they will become so much stronger before they are finally planted out as amply to repay the additional trouble. It is a very ornamental plant for the lawn or sub-tropical garden. It grows from four to six feet high, its brownish-red, pink, or crimson minute flower-heads being disposed in a large, loosely-branched terminal fountain-like panicle, which has a peculiar but delightful odor. It was introduced from New South Wales in 1800. Syn. *Agathomeris.*

Humming Bird Bush. *Æschynomene Montevidensis.*

Humming Bird's Trumpet. See *Zauschneria.*

Hu'mulus. The Hop. From *humus,* the ground; creeping on the ground if not supported. Nat. Ord. *Urticaceæ.*

H. lupulus, the common garden Hop, has been under cultivation in Europe from a very early period. It was well known by the Romans, and is mentioned by Pliny under the name of *Lupus salictarius.* It was introduced from Flanders into England in 1524. Its cultivation, however, met with violent opposition; petitions to Parliament were presented against it, in which it was stigmatized as "a wicked weed that would spoil the drink and endanger the people." The Hop, like all the diœcious family, bears its flowers on separate plants; the female plant, therefore, is alone cultivated. The Hop is increased by cuttings from the most healthy of the old shoots; two buds are required, one beneath the ground, from which will spring the roots, and from the other the stalk. *H. Japonicus,* the Japan Hop, is a rapid-growing climber, similar in appearance to the common Hop. Neither heat, drought, nor insects seem to trouble it, rendering it a valuable plant for covering trellises, verandas, etc. Introduced from Japan in 1886.

Hungarian Millet, or **Hungarian Grass.** *Panicum Germanicum.* This is a very valuable grass for light soils, and is very early, with abundant foliage, two to three feet in height. It stands drought well, and is very popular with those who are clearing timber lands.

Hunnema'nnia. Named in honor of *J. Hunnemann,* a zealous botanist and botanical collector. Nat. Ord. *Papaveraceæ.*

An erect-growing herbaceous, tender perennial, allied to *Eschscholtzia. H. fumariæfolia,* the only species, is a native of Mexico; it grows to the height of two or three feet, with glaucous leaves, resembling those of the Fumatories, and bears large, solitary terminal flowers, like those of the *Eschscholtzia.*

HYA

Although a perennial, it can be successfully grown as an annual by starting the seeds early in spring, in the green-house or hot-bed.

Huntley'a. Named after the *Rev. Mr. Huntley,* a zealous collecter of plants. Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, natives of South America. The genus is closely related to *Zygopetalum. H. violacea,* from Demerara, is a very handsome species, its flowers being large and of an intense violet color, which is quite uncommon among Orchids. This species is also known as *Bollea violacea* and *Pescatoria violacea.* It is evergreen, and requires but a short season of rest, and should be grown in the shade and never allowed to become wholly dry. It is increased by division; introduced in 1831.

Huntsman's Cup. One of the popular names of *Sarracenia purpurea,* from a fancied resemblance.

Hu'ra. Sand-box Tree. The name of the tree in South America. Nat. Ord. *Euphorbiaceæ.*

A small genus of tropical evergreen trees, with whitish-yellow flowers. *H. crepitans,* the only species, is the sand-box tree of tropical America. It is a branching tree of thirty to forty feet high, often planted for the sake of its shade, for which it is well adapted, having a great abundance of glossy, poplar-like leaves. The flowers are inconspicuous, and are succeeded by curious rounded, hard-shelled fruit about the size of an orange, which is divided into deep furrows, in each of which is a cell containing a single flattened seed. When the fruit is ripe and exposed to the action of a dry atmosphere, it bursts with great force, accompanied by a loud, sharp crack, like the report of a pistol, for which reason it has often been called the Monkey's Dinner-bell. The seeds are much used in medicine, and the timber in the mechanic arts.

Hyacinth Bean. A common name for *Dolichos lablab.*

Hyaci'nthus. The Hyacinth. The name of this genus originated with the fabulists of antiquity. It was pretended that Hyacinthus, a beautiful boy, was the son of a Spartan king, and the favorite of Apollo. Zephyrus, being envious of the attachment of Apollo and Hyacinthus, so turned the direction of a quoit which Apollo had pitched while at play, that it struck the head of Hyacinthus and slew him. The fable concludes by making Apollo transform the body of his favorite into the flower that bears his name. Nat. Ord. *Liliaceæ.*

This genus comprises about thirty species of bulbous plants, the majority of which are natives of the Mediterranean region, and the East. *H. orientalis,* from which species the numerous cultivated varieties have originated, is a native of the Levant, and was first introduced into England in 1596, but it was known to Dioscorides, who wrote about the time of Vespasian. Gerarde, in his Herbal, published at the close of the sixteenth century, enumerates four varieties, the single and double blue, the purple and the violet. In that valuable old book on gardening, "*Paradisi in Sole Paradisus terrestris,*" published by John Parkinson in 1629, there are men-

tioned and described eight different varieties. He tells us "some are pure white; another is almost white, but having a show of blueness, especially at the brims and bottoms of the flowers; others again are of a very faint blush; some are of as deep a purple as a violet; others of a purple tending to redness, and some of a paler purple; some again are of a fair blue; and some so pale a blue as if it were more white than blue. After the flowers are past, there rise up great three-square heads, bearing round black seed, great and shining." During the two hundred and fifty years that have passed since the above was penned, there has been a steady improvement in the size, form and color of the flowers of this plant. From the eight varieties of 1629, more than four thousand varieties have been produced and catalogued, from which number upward of two hundred varieties are subjects of extensive commerce. The Hyacinth is a universal favorite in the most extended application of the word. The number of its varieties is now fully equal to that of any other florist's flower. They are usually grown for forcing into flower in the dull, cheerless months of winter and early spring, when their delicately-colored flowers and rich fragrance lend a charm not otherwise to be found. They are equally desirable for planting in beds, or in the garden border. For forcing, the bulbs should be potted about the middle of September in five inch pots in rich, light earth, and placed in a cold frame or under a wall, where they can be covered with wooden shutters, or some similar contrivance, to keep off heavy rains; in either case they should be covered a foot thick with newly-fallen leaves, and being once well watered after potting, they may be left for a month to form their roots, when the most forward should be brought out, and placed in a gentle heat. Some care is necessary in the application and increase of this, or the flowers will be abortive; it should not exceed 50° for the first three weeks, but afterward may be increased gradually to 60° or 65°, and if the pots are plunged into bottom heat the same careful increase should be observed, or the points of the roots will infallibly be killed. One-third the depth of the pot is fully sufficient at first, and if the heat is brisk they should not be plunged more than half way at any time. When the flower stems have risen to nearly their full height, and the lower flowers of the spike are beginning to expand, the plants should be removed to a lower temperature, usually afforded by the green-house, and when the flowers are fully expanded, the plants can be taken to the sitting-room or wherever their presence is desired, observing to protect them from sudden changes or cold draughts of air, and the water given to them should be moderately warm. Hyacinths in glasses are an elegant and appropriate ornament to the drawing-room, and for this purpose occasion little trouble. The bulbs should be procured and placed in the glasses as early in the season as possible, keeping them in the dark until their roots are well started, after which the lightest position that can be afforded is the best; the water in which they grow should be changed twice or thrice a week, and in severe weather the plants must be removed from the window,

so as to be secure from frost. For decorating the flower garden, the bulbs should be planted in October or the early part of November, in light, rich soil, at a depth of four inches from the crown of the bulb to the surface of the earth. It may be necessary to place sticks to them when in bloom, to prevent them from being broken by the wind, and this is all the attention they require till the foliage is withered, and the season has arrived for taking them up, when, instead of the usual practice of drying them at once in the sun, we would advise the Dutch method to be adopted, namely, to place them side by side on a sunny spot of ground, and cover them with about an inch of loose earth, to thoroughly ripen by the subdued heat imparted to the earth which surrounds them. Left in this position for a fortnight, they will become dry and firm, and an hour or two of sunshine will finish them properly for storing. The multiplication and growth of Hyacinths for sale is principally carried on out of doors in the vicinity of Haarlem, in Holland. The sandy soil, and moisture of both soil and climate in that country, are peculiarly favorable to the growth of the Hyacinth. Hundreds of acres are there devoted to the culture of these and kindred plants, and the Haarlem gardens are a gay sight from the early season of the year till far on in the summer. The process of multiplication is carried on by sowing the seeds, or by taking offsets from the parent bulb. By seeds new varieties only are obtained; it is by offsets the already known and valued kinds are increased. The bulbs are cut crosswise and sprinkled with sand to absorb any superfluous moisture that may exude from the incisions. After a time they are planted in the earth, when numerous small bulbs are formed on the edges of these incisions. At the expiration of one season they are again lifted from the ground, and the numerous small bulbs, still only partially developed, are separated from the parent root, and planted out *again* and *again*, year after year, for three or four years, before they become flowering bulbs of fine market quality. The white Roman Hyacinth is largely used for forcing for winter flowers by the florists of New York and all large cities. In New York alone upward of one million bulbs are used during the winter, and the number is rapidly increasing each year. The flower spikes average four cents each at wholesale. By a succession of plantings, beginning in September, they are had in flower from November till May, and even later. The method pursued is similar to that for the Lily of the Valley (See *Convallaria*, where the method is described). *H. Candicans*, Syn. *Galtonia*, is a very showy species, forming a scape four to five feet high, including a raceme of from fifteen to thirty pure white, large, fragrant, drooping flowers, admirably adapted for growing in clumps, in borders, or on lawns. Although a native of south Africa, it is quite hardy, more especially if slightly protected with leaves, etc.

Hybrid. Hybrids are plants obtained by applying the pollen of one species to the stigma of another; the common offspring of two distinct species.

HUMULUS JAPONICUS.

HOYA BELLA.

HYACINTHUS CANDICANS.

HUMEA ELEGANS.

HYACINTHS (SINGLE).

HYACINTH (WHITE ROMAN).

HORDEUM JUBATUM

HYACINTH (FEATHERED).

IBERIS HYBRIDA NANA (DWARF CANDYTUFT).

IMPATIENS SULTANI.

HYDRANGEA HORTENSIS ROSEA.

HYDRANGEA PANICULATA GRANDIFLORA.

IBERIS (WHITE ROCKET CANDYTUFT).

HYB

Hybridization. It is to the careful, systematic, and pains-taking efforts of the hybridizer that most of our "Florist's Flowers" have been brought to their present standard of excellence. The operation consists in removing the pollen by means of a camel's hair brush or otherwise, from the male parent and placing it on the stigma of the female or seed bearer. Of course unless the latter is receptive this proceeding would be ineffective. As a rule when the stigma is fit to be acted upon by the pollen, it becomes more or less glutinous. This condition occurs in some plants before their own anthers are ready to discharge the pollen, and in others after the pollen has been shed. In both these cases, the arrangement is evidently to prevent self-fertilization. In most plants however the stigma and anthers are developed at the same time, and with them it is necessary to remove the anthers before they burst, and at the same time by means of fine gauze or otherwise to prevent the visits of insects which might convey pollen from another flower and thus effect an undesirable cross. Insects doubtless perform an important part in the fertilization of flowers, for upon examination a number of plants will be found to bear flowers manifestly adapted for insect visitation. Not to mention the Orchid family which Darwin observed so closely and has described so minutely, the curious genus of Stapelia is fertilized solely by the larvæ of a fly, generally the common "Blue Bottle." This fly, attracted by the offensive odor of the flower, lays its eggs as far as it can in the tube of the corolla. These eggs hatching, the larvæ they produce come in contact with the pollen-granules which adhere to them and which they carry to the pistils and thus fertilize them. A similar office is performed for Ceropegia by a small fly in the perfect state. As a rule, flowers possessing much fragrance, and secreting nectar, and those of gay colors, are more or less dependent on insect agency. Hermaphrodite flowers, being provided with both stamens and pistils, pollen and ovary, one would suppose to be amply furnished with the powers of reproduction, yet it has been abundantly shown that flowers fertilized by themselves do not produce such vigorous and healthy seeds and offspring as those fertilized by another flower of the same species; hence the disadvantage of breeding in and in, the nearer the degree of consanguinity, the less prospect is there of healthy and vigorous offspring. The hybridizer therefore finds a flower of good shape but defective in color, crosses it with another, defective perhaps in shape but of a novel and desirable color, a weakly growing variety of good habit, is crossed with a more robust variety, lacking the peculiar qualities of the former and so on. With regard to Double Flowers, if the finest colored and best shaped flowers of the single sorts are selected as in the Petunia, the anthers carefully removed before they burst, and then fertilized with pollen from the best double or even semi-double flowers attainable, fifty to seventy-five per cent. of the progeny may be relied upon to produce flowers equal to, and often superior, to the parent. In a lecture before the Massachusetts Horticultural Society, the Hon. Marshall P. Wilder, a most successful hybridizer, said, "In my experiments, I have discovered that for the production of double flowers, it is important that the pollen used for impregnation should be borne on a petaloid anther—that is, an anther bearing a small petal—and that this is still better if from a double flower. I also observed that the larger and better developed this petaloid anther, the better chance for a fine double offspring; for as might have been expected, the anthers being connected with the corolla, the number of petals would be increased by such an operation. I found also that for the most perfect and symmetrical flowers, it was better to select single flowers, which were the most perfect in their petals for seed bearers; and that single or semi-double sorts with perfect corollas, when impregnated with petaloid pollen, will produce double flowers of a regular symmetrical formation. Of this I have the most conclusive evidence in the *Camellia Wilderii*, and many other fine double varieties in my collection which were produced from a single red and single white Camellia, fertilized by pollen from a petaloid anther of double varieties." Mr. Wilder for many years made the hybridization of Camellias a speciality and to his efforts we owe some of the best varieties in cultivation.

HYD

Hydra'ngea. From *hydor*, water, and *aggeion*, a vessel; referring to the cup form of the capsule or seed-vessel. Nat. Ord. *Saxifragaceæ.*

A genus of showy shrubs, first introduced into England in 1790 by Sir Joseph Banks, who sent *H. hortensis* from China, and since then a number of species have been sent to this country from Japan, among which is a climbing variety, *H. volubilis*, or *scandens*, that will adapt itself to almost any situation. It is slow growing and a little tender while young, and is still scarce. What has been known as the climbing Hydrangea, will be found described under *Schizophragma.* The flowers, or rather bracts, of *H. hortensis* are pink, but in some soils they become of a deep blue. This change is effected artificially by using iron filings, incorporating them in the soil. A distinct white variety of *H. hortensis*, known as "Thos. Hogg," is now very popular. To cultivate these plants in perfection, cuttings should be taken every season from the strongest shoots of the old plants in July or August; and after being struck, should be potted in rich earth, and encouraged to grow vigorously. A cold pit or frame, with frequent applications both of manure and plain water, will usually effect this, and cause them to become thoroughly established and strong before the winter. In this state they may either be forced in a gentle, moist heat through December and the spring months to bloom early, or kept cool for the production of summer flowers; in either case, it must be borne in mind that they require abundance of moisture when in an active state. *H. paniculata grandiflora*, introduced a few years since from Japan, is among the finest of all hardy shrubs for the lawn or the border. The flowers are white, and are produced in the greatest abundance in August, and remain till mid-winter in a dried condition. *H. Otaksa*, also recently introduced from Japan, is of the habit of *H. hortensis*, but a stronger grower, and more profuse bloomer, forming a

very superior sort for pot culture for decorative purposes. *H. h. rosea* is another variety with large deep rose-pink-colored globular trusses, very free flowering and desirable. *H. stellata prolifera* introduced from Japan in 1868, is a most beautiful free flowering double pink variety, with large trusses of flowers often nine inches in diameter.

Hydra'stis. Yellow Root. Yellow Puccoon. From *hydor*, water; referring to the marshy places where it grows. Nat. Ord. *Ranunculaceæ.*

H. Canadensis, the only species, is a hardy herbaceous perennial, common in moist woods in the Northern and Eastern States, where it was formerly esteemed in domestic medicine. It has a thick knotty yellow underground stem or root, which in early spring sends up a simple stem, about a foot high, bearing near the top two (or rarely three) hand-shaped leaves, the upper leaf growing close upon the stem, while the lower one has a longish stalk. The flower is solitary, inconspicuous, and produced at the top of the stem. The fruit greatly resembles a red raspberry. The yellow root of this plant was formerly employed by the Indians for dyeing a bright yellow color, and it is occasionally used for the same purpose at the present day. The root is also used in medicine as a narcotic.

Hydriaste'le. From *hydria*, a water vessel or fountain, and *stele*, a column; in allusion to the tall stems growing near springs. Nat. Ord. *Palmaceæ.*

H. Wendlandiana is the name now given to the beautiful Australian Palm, known in cultivation as *Kentia Wendlandiana.*

Hydro'charis. From *hydor*, water, and *charis*, grace; a pretty water plant. Nat. Ord. *Hydrocharidaceæ.*

A small floating aquatic giving name to the small order which contains the *Stratioides* or Water Soldier, and the curious *Vallisneria* or Eel Grass. *H. morsus ranæ*, or Frog-bit is an elegant little plant inhabiting ditches, ponds, and the still back waters of rivers. It is one of the most desirable plants for the fresh water aquarium.

Hydroco'tyle. From *hydor*, water, and *cotyle*, a cavity; in reference to the plants growing in moist situations, and the leaves being hollowed like cups. Nat. Ord. *Umbelliferæ.*

A genus of uninteresting, marshy plants, common throughout the United States, and popularly known as Water Pennywort. There are about a dozen species.

Hydrophylla'ceæ. A small natural order of annual or perennial herbs or small trees, natives chiefly of north-west America. A few are found in the East Indies and the Cape of Good Hope. They have usually alternate and lobed, hispid leaves, with chiefly white or blue flowers, in one-sided cymes or racemes, which are mostly bractless, and coiled from the apex when young, as in the Borage family. Well known genera are *Nemophila*, *Eutoca*, *Phacelia* and *Whitlavia.*

Hydrophy'llum. Water Leaf. From *hydor*, water, and *phyllon*, a leaf; leaves loaded with water in spring-time. Nat. Ord. *Hydrophyllaceæ.*

A genus of herbaceous perennials, natives chiefly of the Western States. The flowers are pale white or blue, bell-shaped, in cymose clusters, and the species grow generally among moist shady rocks.

Hydropy'rum. Canada, or Indian Rice. A synonym for *Zizania*, which see.

Hyema'lis. Of or belonging to winter; generally applied to plants that bloom in winter.

Hymenoca'llis. From *hymen*, a membrane, and *kalos*, beautiful; referring to the membranous cup inside of the flower. Nat. Ord. *Amaryllidaceæ.*

A genus of hardy and green-house bulbs, producing large white flowers similar to the Pancratium, to which class they are closely allied, and under which name they are described in "Chapman's Flora of the Southern States." *H. rotatum*, *H. occidentale* and other species are found in great abundance in the swamps of Virginia and southward, and are sent to market in large quantities, and sold on the streets of all our large cities as "*Spanish Lilies.*" They are considered poor tenants for the green-house, as they do not pay *in beauty* for the required room and care. The genus *Ismene* is included under *Hymenocallis* by some authors. See *Ismene* and *Pancratium.*

Hymeno'dium. A synonym of *Acrostichum.*

Hymenophy'llum. Filmy-leaf Fern. From *hymen*, a membrane, and *phyllon*, a leaf. Nat. Ord. *Polypodiaceæ.*

A genus of very beautiful Ferns, mostly natives of Chili and New Zealand, where they grow in moist ravines. The fronds are variable, some being very minute, and others of large size; some single, others compound. Several of the species are highly esteemed for cultivation in the green-house.

Hymenospo'rum. From *hymen*, a membrane, and *sporos*, seed; the seeds are girded by membranous wings. Nat. Ord. *Pittosporaceæ.*

H. flavum, the only species, is a handsome evergreen plant from eastern Australia. It is of branching habit, with broadly obovate-lanceolate, glaucous leaves. The flowers form a compound terminal corymb, and are yellow, marked with orange-red at the mouth of the tube-like portion, and clothed outside with silky hairs. Syn. *Pittosporum flavum.*

Hyopho'rbe. From *hyos*, a hog, and *phorbus*, pasturage. Nat. Ord. *Palmaceæ.*

A small genus of Palms, inhabiting the island of Bourbon and Mauritius, and having tall cylindrical stems, marked with circular scars, and a crown of graceful pinnate leaves. The male and female flowers grow on distinct trees, or a few males are occasionally interspersed among the females, the flower-spikes being simply branched and growing out from beneath the leaves, with a single spathe at their base. The fruit has a fibrous, fleshy rind, and contains a single seed. *H. Verschaffeltii*, formerly known as *Areca Verschaffeltii*, is one of the most ornamental species. Young plants are produced from seed.

Hyoscy'amus. Henbane. From *hyos*, a hog, and *kyamos*, a bean; the fruit is eaten by hogs. Nat. Ord. *Solanaceæ.*

H. niger is the common Henbane whose virtue consists in the supposed power it has of absorbing malaria that is generated around filthy habitations. It is also cultivated for its medicinal properties.

Hyperica'ceæ. A natural order of herbs, shrubs, or trees, with a resinous juice, opposite, rarely whorled, entire, exstipulate leaves, usually with transparent dots, and blackish glands, and regular flowers. The plants of this order are generally distributed over the world, both in temperate and warm climates. Many species yield a yellow juice and an essential oil. There are ten genera, and nearly three hundred species. Illustrative genera are *Hypericum*, *Elodea*, and *Ascyrum*.

Hype'ricum. St. John's Wort. The name is said to be derived from *yper*, over, and *eicon*, an image; the superior part of the flower represents a figure. Nat. Ord. *Hypericaceæ*.

The pretty, yellow-flowered shrubs and herbaceous perennials known by this name at the present day, were formerly, in ignorant communities, in high repute for driving away evil spirits; and on this account were generally planted near dwelling-houses. They were also highly valued for their medicinal properties, being believed to have a powerful effect in stopping blood and healing wounds. All the kinds will thrive under the drip of trees; and they will grow almost anywhere, though they prefer moisture and a moderate shade. They are found in almost all the temperate climates of the world; and are propagated by seeds and by division of the roots.

Hyphæ'ne. From *hyphaino*, to entwine; referring to the fibres of the fruit. Nat. Ord. *Palmaceæ*.

A small genus of African palms confined to, and widely distributed throughout that continent, more particularly upon the eastern side, extending from Egypt as far south as Natal. The genus is remarkable for having the stems branched, a peculiarity not frequent among palms, each branch terminating in a tuft of large fan-shaped leaves, from amongst which the branching catkin-like spikes of flowers are produced, the different sexes being borne on different trees. *H. thebaica* is the Doum Palm, or Gingerbread tree of Egypt. It seldom exceeds twenty-five or thirty feet in height, and its stem is frequently three or four times branched or forked in old trees, though when young it is always simple. The fruits which are produced in long clusters, each containing between one and two hundred, are beautifully polished, of a rich yellowish, brown color, and of irregular form. In Upper Egypt they form part of the food of the poorer classes of inhabitants, the part eaten being the fibrous mealy husk, which tastes almost exactly like gingerbread, but its dry husky nature renders it unpalatable. The hard tough wood is used for making various domestic utensils; and rosaries are cut out of the horny seed.

Hypocaly'mma. From *hypo*, under, and *kalymma*, a veil; the calyx, falling off like a veil, or hood. Nat. Ord. *Myrtaceæ*.

A genus of ornamental evergreen shrubs, containing about twelve species, natives of Australia. *H. robustum* is a charming little green-house plant, bearing a profusion of small bright rose-colored flowers, and having an odor resembling lemons. It is of easy culture, and is increased readily by cuttings. Introduced in 1842.

Hypocalyptus. From *hypo*, under, and *kalypto*, to hide; named from a covering to the unopened flower. Nat. Ord. *Leguminosæ*.

H. obcordatus, the only species is an ornamental green-house evergreen shrub from the Cape of Good Hope. It has neat trifoliate leaves and purple flowers, appearing in June and July. It was introduced in 1823, and is propagated by cuttings of the side shoots. Syn. *Crotolaria purpurea*.

Hypocrateriform. Salver-shaped; having a long slender tube and a flat limb, as in the Primrose.

Hypocy'rta. A genus of *Gesneraceæ*, containing a few species, natives of South America. They are procumbent under-shrubs, throwing out roots from below the origin of their opposite and fleshy leaves. The flowers are axillary and solitary, or several together, generally bright scarlet in color. They were introduced in 1846, and are increased by cuttings, or seeds.

Hypoe'stes. A considerable genus of *Acanthaceæ*, dispersed over Africa, tropical Asia, and Australia, and remarkably abundant in Madagascar. They are shrubs or small trees, with entire or dentate leaves, and large purple or rose-colored flowers in axillary clusters or short spikes, often numerous and forming a terminal leafy thyrse. Nearly forty species have been described; increased by cuttings.

Hypogæous. Growing under the earth.

Hypogynous. Growing from below the base of the ovary.

Hypo'lepis. From *hipo*, under, and *lepis*, a scale. Nat. Ord. *Polypodiaceæ*.

A small genus of handsome free-growing ferns, natives of tropical America, south Africa, New Zealand, etc., nearly allied to *Cheilanthes*. The fronds are evergreen, bi- or quadripinnate, with free veins. These are plants of easy culture, thriving best in a rough, coarse soil; they should have good drainage and plenty of water.

Hypo'xis. Star Grass. From *hypo*, beneath, and *oxys*, sharp; referring to the seed pod. Nat. Ord. *Amaryllidaceæ*.

H. erecta, a very pretty bulb, found in meadows and waste places in New England, and southward. The flowers are bright yellow inside, brownish outside, and borne on umbels on a scape about a foot high.

Hyssop. See *Hyssopus*.

Hysso'pus. From *Hyssopos*, the old Greek name, used by Hippocrates. Nat. Ord. *Labiatæ*.

The garden Hyssop is a native of Siberia, and the mountainous parts of Austria. It was early introduced into the garden in this country, and has escaped in many places to the roadsides. It is considerably grown as a medicinal herb, but is not, however, much esteemed except in domestic practice. This is not supposed to be the Hyssop mentioned in the Old Testament, and it has not been ascertained what plant is referred to. As it was one of the smallest plants, and "grew out of the wall," some have conjectured it to be one of the Mosses.

I.

IBE

Ibe'ris. Candytuft. From *Iberia*, the ancient name of Spain, where the original species abounds. Nat. Ord. *Cruciferæ*.

The genus consists of annuals, biennials and perennials, all perfectly hardy and of the easiest culture. The common name *Candytuft* was given because they flower in tufts. and the first introduced species, *I. umbellata*, was brought from Candia. For the early flowering of the annual varieties, the seed should be sown in the fall, and slightly protected from the sun, during winter, by leaves or any convenient dry mulching; they will come into flower in May. The plants of *I. coronaria*, Rocket Candytuft, should be thinned out to one or two feet apart each way; then, if in rich soil, they will completely cover the ground. The sub-shrubby species, *I. correæfolia*, *I. Gibraltarica*, *I. sempervirens* and others, are most handsome, compact-growing plants, admirably adapted for the front rows of shrubbery or herbaceous borders. If grown in cold frames, and kept a little close towards spring, they will bloom at least three weeks before those out-of-doors, and are valuable for early decorations, or for cut flowers.

Iceland Moss. See *Lichen*.

Ice Plant. See *Mesembryanthemum*.

Ide'sia. Named after *Y. Ides*, a Dutch traveler in China. Nat. Ord. *Flacourtiaceæ*.

I. polycarpa, the representative species of this genus, is a beautiful tree, found in Japan, and said to be perfectly hardy around New York. The leaf stem is from six to twelve inches long and bright red, with leaves nearly round and from six to eight inches broad. The flowers are yellowish-green, in long drooping racemes, and very fragrant. The fruit is about the size of a cherry, of an orange color, and edible. Syn. *Flacourtia*.

I'lex. The Holly. Name originally from the Celtic, *oc* or *ac*, signifying a point; on account of the prickly leaves. Nat. Ord. *Aquifoliaceæ*.

An extensive genus of evergreen trees and shrubs, remarkable for their glossy, prickly foliage and scarlet fruit, that remains on the shrub during the winter. They are well adapted for the lawn or for hedges, and grow best in a dry loam. *I. aquifolium* is the Holly of the English gardens, and *I. opaca* is the American Holly, which grows plentifully from New York southward. It is to be regretted that the English Holly, the most beautiful of all evergreens, is unsuited to our climate, being in the Northern States too tender to withstand our winters, while the hot, dry summers of the Southern States are equally injurious to it. *I. Paraguariensis*, a native of Paraguay and Brazil, furnishes the Paraguay tea, or Yerba de Matè, which occupies the same important position in the domestic economy of South America as the Chinese tea does in this country, and it is calculated that it is consumed in that country to the extent of about 8,000,000 pounds annually. It has been in use for about a century and a half, the practice having been adopted from the aboriginal people. The leaves are prepared by drying and roasting, when they are reduced to a powder, which is prepared for drinking by putting a small quantity into a gourd or cup, with a little sugar. The drinking tube is then inserted and boiling water poured on the Matè; when sufficiently cool the infusion is sucked up through the tube. It has an agreeable, slightly aromatic odor, is rather bitter to the taste, and very refreshing and restorative to the human frame after enduring great fatigue. It contains the same active principles as tea and coffee, called theine, but not their volatile and empyreumatic oils.

IMP

Illici'neæ. A small natural order, generally placed as a sub-order of *Aquifoliaceæ*.

Illi'cium. Aniseed Tree. From *illicio*, to allure; referring to the perfume. Nat. Ord. *Magnoliaceæ*.

A small genus of evergreen shrubs or low-growing trees, with smooth entire leaves, exhaling when bruised, a strong odor of Aniseed. They are natives of the extreme Southern States, Japan, southern China, and Asia. *I. religiosum*, a Japanese species, is a small tree about the size of a cherry, and is held sacred by the Japanese. The leaves of this species, like those of *I. floridanum*, are said to possess poisonous properties. In Alabama the plant has acquired the name of Poison-Bay.

Ima'ntophy'llum. From *imas*, *imantos*, a leather thong, and *phyllon*, a leaf; alluding to the shape and substance of the foliage. Nat. Ord. *Amaryllidaceæ*.

Those with authority to speak of plants seem determined that the only species of this genus shall have neither name nor home. Some insist upon calling it *Clivia nobilis;* others want to reverse it, and have *C. nobilis* called *I. Aitoni*. Then, again, for variety's sake, some prefer the orthography *Imatophyllum*. Most writers call *Imantophyllum* and *Clivia* synonymous. That they are closely allied we do not doubt. Having flowered them frequently, we find the flowers of *I. miniatum* (the only species) to be erect, and much larger than *Clivia nobilis*, the flowers of which are drooping and of a darker color. This species, introduced from Natal in 1854, is propagated by division, and requires the same culture as the *Clivia*. Many beautiful hybrids, having larger and more highly-colored flowers than the type, have of late years been put in commerce in Britain and on the Continent, and are most attractive and valuable acquisitions to this genus.

Imbricated. When bodies overlap each other, like the tiles or shingles on a roof.

Immarginate. Having no rim or edge.

Immersed. Growing entirely under water.

Immortelle. The popular name for *Helichrysum orientale*, which see.

Impa'tiens. Balsam, Silver Weed, Jewel Weed. From *impatiens*, impatient; referring to the

elasticity of the valves of the seed-pod, which discharge the seeds when ripe. A genus of *Geraniaceæ*, chiefly found in India, though a few species occur in Europe and North America. They are generally glabrous herbs, with thick succulent stems, enlarged at the joints, where the undivided leaves are given off. The flowers are axillary, often handsome, and so very irregular that considerable difference of opinion exists as to which parts belong to the calyx, and which to the corolla. The greenhouse species may be propagated from cuttings or from seeds, when these are to be obtained. *I. Sultani*, introduced from Zanzibar, is one of the most beautiful and useful flowering plants of late introduction, producing its bright rose-scarlet flowers almost continually. It succeeds well in a green-house in spring and summer, but requires a warm house for winter. *I. Hawkerii*, introduced from the South Sea Islands, has very large flatly expanded flowers of the most brilliant, rich deep carmine color, relieved by a lustrous bluish tinge round the small white eye, the spur being red and about two inches long. It is of free growth and produces its flowers in great profusion from March until October. *I. Jerdoniæ*, a dwarf species, is best grown as a basket plant, started into growth in April, and rested during winter.

Our native species of this genus are generally known as Touch-Me-Nots, from the sudden bursting of the pods when touched. They are interesting annuals, common in damp ground throughout the United States. The Balsam of our gardens is *I. Balsamina*, and is described under Balsam, which see.

Imphee. See *Sorghum.*

Incised. Regularly divided by deep incisions.

Incurved, Incurvate. Bending inwards; as where the stamens curve towards the pistil.

Indian Bean. See *Catalpa.*

Indian Corn. See *Zea.*

Indian Cress. The genus *Tropæolum.*

Indian Crocus. The genus *Pleione.*

Indian Cucumber Root. See *Medeola.*

Indian Currant. The common name of the fruit of the *Symphoricarpus vulgaris.*

Indian Fig. See *Opuntia.*

Indian Hawthorn. See *Raphiolepis.*

Indian Hemp. See *Apocynum.*

Indian Hill-Guava. See *Rhodomyrtus.*

Indian Mallow. A common name of *Abutilon Avicennæ*, a troublesome weed in fields and waste places. It is a native of India, and was introduced into our gardens as an ornamental plant, but is now naturalized, and is spoken of as valuable for its fibre.

Indian Millet. One of the popular names of *Sorghum vulgare*, to which species belong Broom Corn, Sweet Sorghum, and other cultivated varieties.

Indian Pink. One of the popular names for *Dianthus Chinensis.*

Indian Pipe. A common name of the *Monotropa uniflora.* See *Corpse Plant.*

Indian Plantain. The popular name of the genus *Cacalia*, common in rich, damp woods in most of the States.

Indian Poke. *Veratrum viride*, or White Hellebore.

Indian Rice or **Water Rice.** See *Zizania.*

Indian Shot. See *Canna.*

Indian Strawberry. *Fragaria indica.*

Indian Tobacco. See *Lobelia inflata.*

Indian Turnip. See *Arisæma.*

India Rubber Tree. See *Ficus elastica.*

Indigenous. A plant which is the natural production of any country; not exotic.

Indigo. See *Indigofera tinctoria.*
Wild. *Baptisia tinctoria.*

Indigo'fera. From *indigo*, a blue dyestuff; a corruption of *Indicum*, Indian, and *fero*, to bear; most of the species produce the well-known dye called Indigo. Nat. Ord. *Leguminosæ.*

An extensive genus of rather ornamental herbaceous perennials, tender annuals, and evergreen shrubs, grown almost wholly for the commercial value of the dyes they produce. *I. tinctoria*, the species most commonly cultivated, is a native of the East Indies and other parts of Asia, but it has been introduced into, and become naturalized in, the Southern States, and was formerly extensively cultivated, as was *I. anil*, the West India Indigo, a stronger growing species, from both of which large quantities of Indigo were made. They are tender shrubs, growing from four to six feet high, with very pinnate leaves, and axillary racemes of pink and purple flowers. The shrubby species are propagated by cuttings, and the annuals from seeds.

Indusium. The membraneous covering of the spore-cases of many Ferns.

Inferior. When one organ is placed below another; thus an inferior calyx grows below the ovary, while an inferior ovary grows, or seems to grow, below a calyx.

Inflated. Thin, membraneous, slightly transparent, swelling equally, as if inflated with air.

I'nga. The South American name of *I. vera*, adopted by Marcgraff. Nat. Ord. *Leguminosæ.*

A very extensive genus of ornamental shrubs and trees, numbering upward of one hundred and fifty species, natives of the warmer parts of South America, principally of Brazil and Guiana. The flowers are white, pink, crimson, etc., and are borne in variously-shaped spikes, or in nearly globular heads, growing singly or in clusters from the angles of the leaves. *I. pulcherrima*, a native of Mexico, is one of the most beautiful of the genus. The foliage is smaller than most of the species, and is very ornamental. The tassel-like flowers are of a bright crimson, and very showy. The shape of the flower-heads has given it the name of Bottle Brush. All the species are propagated from cuttings of young wood in summer. Introduced in 1822.

Ink-Berry. The fruit of *Ilex (Prinos) glabra*, an evergreen shrub, common on the Atlantic coast.

Insecticides. The enormous damage done by insects to our fruits, vegetables, grains, etc., is almost beyond belief, amounting, it is claimed, to over two hundred millions of dollars yearly in the United States alone; their

prompt destruction, therefore, immediately any are detected, is most important and essential. Fortunately the extensive experiments in insecticides and the improvements in implements for applying them, enable us to fight them so well that the damage done is scarcely felt when the most is made of the opportunities within reach. In applying insecticides it should be borne in mind that "enough is as good as a feast." It is not necessary to drown the insects with solutions, or to bury them in powder, to kill them; the least particle of poison is sufficient to do its deadly work, but it is necessary that "the least particle" and the insect come in contact. It is much better to reach every portion of the plant or tree, underneath as well as above, with a fine spray of fluid, or a slight dusting of powder, than to apply liberally in some parts and carelessly overlook others, as is the too general custom. To fight insects effectually it must be done thoroughly, and every inch must be covered. Besides, there is much less danger of burning or injuring the leaves and fruit by light applications. The improved implements now offered for applying powders or fluids are great economizers, covering large surfaces, with less material, doing it with greater speed, and reducing the danger of injury to the plants to a minimum. Of the many insecticides recommended for general use in the garden or orchard the most serviceable are London Purple, Paris Green and Kerosene Emulsion.

London Purple is rapidly taking the lead. It is largely used in the public parks and on government experimental farms, and is considered superior to Paris Green on account of being more soluble, there being less danger of burning the foliage with it. It is said to go further, and is certainly much cheaper, which is accounted for by its being a by-product. When used as a powder it has also the advantage of being more readily seen on the plants. The adulterants usually mixed with it are either land-plaster, road-dust, plaster-of-Paris or cheap flour, and it is advisable to mix thoroughly at least twenty-four hours before use, which allows the adulterant to absorb the poison, making it more effectual. When mixed with flour one pound of London Purple, to twenty to thirty pounds of flour, is the proper proportion, according to the tenderness of the plants; mixed with land-plaster or plaster-of-Paris, one pound of the poison to a hundred and fifty pounds of the adulterant; with dry road-dust, one pound of the poison to a bushel and a half of the dust. In making liquid solutions mix one pound of London Purple with two hundred gallons of water, but first wet the powder and form a thin paste to prevent it from forming lumps. It should be put in the water twelve hours at least before use, for the best results. Paris Green can be mixed in the same proportions, and in the same manner. Kerosene in its natural, undiluted state is fatal to all insect and vegetable life, but prepared (emulsified) as recommended by the Entomological Division of the Department of Agriculture at Washington, may be used safely and with much benefit.

Kerosene Emulsion. Add two gallons of Kerosene to a hot solution of one-half a pound of soap in a gallon of water, and churn the

mixture through the nozzle of a force-pump until it forms a cream-like mass. This may be kept unchanged until needed for use. For general use reduce the emulsion thus made with nine parts of water, and apply through a force-pump or syringe, three gallons of the emulsion making thirty gallons of the spraying liquid. Besides its use as an emulsion, Kerosene, when used with discretion, is a most valuable insecticide for the destruction of Mealy-bug, Scale, etc., in the green-house. A wine-glassful to a gallon of water is sufficient, only when applying the solution the water must be kept thoroughly churned by forcing every other syringeful back into the bucket so as to keep it thoroughly mixed. Small plants, such as Camellias, Azaleas, Ardisias, Palms, etc., may be safely dipped in the solution if at the same time it is kept thoroughly mixed as above. Hellebore, Persian and Dalmatian powders, Buhach, etc., are valuable for destroying the Cabbage-worm, etc. See *Insects*.

Insects. In the green-house or grapery, or any place where plants are grown under cover, insects, with few exceptions, are under control; but when in the open field or garden we are often powerless against their ravages, particularly when they attack the roots of plants. We can manage many of them, even outside, when they attack branches or leaves; but with others we are as powerless as with those attacking the roots. There is no doubt that the encouragement of birds on farms and in gardens, by feeding and sheltering them, well repays in the return for the insects they destroy. In nearly all the large cities in this country, since the introduction of the European Sparrow, though in part a seed-eater, there has been a marked absence of the "Measuring Worm," "Rose Slug," and other caterpillar-like insects.

The Rose Slug (*Selandria rosea*) is a light-green insect, which, when fully developed is about an inch in length. There are apparently two kinds, one of which eats only the outer skin of the leaf on the under side, the other eats it entire. The first is by far the most destructive. In a few days after the plants are attacked, they appear as if they had been burned. An excellent application for the *prevention* of the Rose Slug is whale oil soap dissolved in the proportion of one pound to eight gallons of water; this, if steadily applied daily for a week with a syringe on Rose plants, in early spring, before the buds begin to develop, will never fail to prevent the attacks of this insect. If this precaution has been omitted, and the insects are seen on the leaves, white Hellebore powder dusted on the plants will quickly destroy them, without injury to the plants. The Rose Beetle (*Aramigus Fulleri*) or Bug, as it is commonly called, however, is a much more difficult insect to deal with. The Rose or Grape Vine Beetle (*Melolontha subspinosa*) is another pest, usually destroying the flowers on the Rose, and both flowers and young fruit on the vine. The only certain remedy is to destroy them by hand.

The Green Fly, or Aphis, is one of the most common, but most easily destroyed, of almost any insect that infests plants, either indoors or out. In our green-houses, we fumi-

gate twice a week, by burning about half a pound of refuse tobacco stems (made damp) to every 500 square feet of glass surface, but in private green-houses or on plants in rooms, fumigating is often impracticable. But Tobacco in any form is quickly fatal to the Green Fly; so in private green-houses or in rooms, where the fumes of Tobacco would be objectionable, Tobacco stems can be used by steeping one pound in five gallons of water, until the water gets to be the color of strong coffee. This is applied over and under the leaves with a syringe, and destroys the insect quite as well as by fumigating, only in either case the application should be made before the insects are seen, to *prevent* their coming rather than to destroy them when established; for often by neglect they get a foothold in such legions that all remedies become ineffectual to dislodge them, unless by brushing them off the leaves with a light brush. Another means of preventing the Green Fly is to apply Tobacco in the shape of dust or snuff. The sweepings of Tobacco warehouses can be bought in most places at a cost of five or ten cents per pound. This, applied once or twice a week to an ordinary-sized private green-house, would effectually prevent any injury from the Green Fly. No special quantity of this need be prescribed, as it is in no way hurtful to the plant; all that is necessary is to see that it is so dusted on that it reaches all parts of the plant, and on both sides of the leaves. It is best to slightly moisten the leaves beforehand, so that the dust will adhere to them. When applied to plants out-doors, it should be done in the morning when the dew is on, or after a rain. Fruit trees of many kinds, shrubs, and Roses of all kinds, out of doors, are particularly liable to injury from some species of Aphis, but the application of Tobacco in any of the forms alluded to, if made in time, will be found a cheap and effectual remedy.

Ground or Blue Aphis is another species of Aphis that gets its living from the roots down in the soil, which may have the effect of changing its color, while the Green Aphis feeds in the air on the leaves. The Blue Aphis attacks a great many varieties of plants, both flower and vegetable, particularly in hot, dry weather, and whenever Asters, Verbenas, Petunias, Centaureas, Beets, Radishes, Lettuce, etc., begin to droop, it will be found on examination, in three cases out of four, that the farthest extremities of their root are completely surrounded by the Blue Aphis. The only remedy we have ever found for this pest is strong decoction of Tobacco stems, made by being boiled until it gets to the color of strong coffee, and poured on, when cold, in quantity enough to reach the extremity of the roots. There is no fear of injuring the plants by this application, as it acts as a fertilizer to some extent.

The Verbena Mite, the minute cause of the "black rust" so disastrous in its ravages on the Verbena, Heliotrope, Petunia, Pelargonium, and various other plants, is so small that it cannot be seen by the naked eye; but its ravages under certain conditions are so disastrous as to render the cultivation of the Verbena and some similar plants next to impossible.

When this little pest has once got a foothold, all direct remedies to dislodge it seem to be powerless; the fumes of tobacco, so destructive to the aphis, or of sulphur, which is death to the spider, fall harmlessly on this microscopic insect.

There is hardly a doubt but that the fumes of sulphur and tobacco would destroy it, if it had not the power of imbedding itself in the leaf. This is evidently the case, as on subjecting affected plants to a severe fumigation with tobacco for thirty minutes no insects could be discerned on the leaves; but after a short time they again appeared on the field of the microscope, apparently unscathed. We also find that an excellent preventive against this insect is to syringe the plants twice a week with a weak solution of fir-tree oil; one-half pint to five gallons of water. This seems like tobacco smoke to check it somewhat, yet it is not a complete remedy and if plants are severely attacked, there is nothing for it but to throw those affected out—as there is but little doubt that it quickly spreads. Now, although we have no direct remedy against this insect, which produces the black rust, we have, I think, a preventive, by keeping the plants in that healthy, vigorous condition which seems to be repellant to its attack.

The Mealy Bug, as it is familiarly known, from its white, mealy-like appearance, belongs to the same family as the Cochineal insect (*Coccus Cacti*), from which the Cochineal dye is obtained. It is one of the most troublesome of all insects to dislodge. The only certain remedy we have ever been able to get to kill Mealy Bug without injury to the leaves, is a mixture known as "Cole's Insect Destroyer," the ingredients of which we do not know, as the inventor so far has been able to keep his secret. This, put on with an atomizer, never fails to destroy them. The great objection to this remedy is its price, which is entirely too high to admit of its being used on a large scale. The common method to get rid of Mealy Bug is to brush it off the leaves with a brush, made soft enough not to scratch the leaves or stems, or by using the Kerosene Emulsion. See Insecticides.

Thrips (*Tettigonia*) vary in color, being light green, brown, and black. It is much more active in its movements than the Green Fly, and more difficult to destroy, and when it once gets a foothold is one of the most destructive enemies to the grapery or green-house. Tobacco smoke that will destroy the Aphis, has but little effect on Thrips; but in our experiments in destroying insects in the winter of 1881 in our green-houses, we found that Tobacco stems boiled so that the liquid from them was as dark as strong coffee or porter, was certain death to the Thrips. We had a large house of Dracænas and other tropical plants badly affected by Thrips; we syringed the plants freely with the Tobacco water for ten or twelve days with the most satisfactory results, as at the end of that time not an insect was to be seen, and the plants at once began to grow with unwonted vigor.

The Red Spider (*Acarus tellarius*) is another well-known pest to the green-house, and, like the Thrips, seems perfectly indifferent to the fumes of Tobacco. It is one of the most insidious of all our insect enemies, as it

works nearly always on the under part of the leaves, and often has got a firm foothold before its presence has been discovered. The experienced gardener knows that the main cause of Red Spider is a dry, hot atmosphere, as it is never present to injure in a moist atmosphere and low temperature. So the preventive is at all times an atmosphere in the green-house that will prevent the attacks of the Red Spider, which at the same time is most congenial to the health of the plants, for it is certain that if the Red Spider is present in force, then the atmosphere has been too dry for the well-being of the plants. To avoid this in private green-houses, where the walks cannot be splashed with water, evaporating pans should be placed on the pipes, or any other method that may suggest itself to increase the moisture of the atmosphere. Last season we filled the space between the rows of pipe with Sphagnum Moss, from which, when wet, a steady moisture was given out. When the Red Spider is present, the best way to destroy it is repeated forcible syringings of the leaves, with applications of a sulphur wash to the pipes, as recommended for Mildew, which see.

"Carnation Twitter" is an insect but little known, and in this district only by its local name of "Carnation Twitter," given from its rapid and nervous motion. As seen by the naked eye, it is about the twentieth part of an inch in length, and of a thickness not more than that of a needle point. It is of various shades of color, from green to black. It is never very numerous on the plants, but most destructive, and evidently poisonous in its attacks on all varieties of the Carnation or Dianthus family. Its effects on plants somewhat resemble those of the Red Spider, except that, when attacked by the "Twitter," the leaves have a cankered and twisted appearance, easily distinguishable from the browning effects of the Spider; and it is far more destructive. We have often seen thousands of Carnation plants destroyed by it in a season. We regret to say that, so far, we have found nothing that will destroy this insect that does not at the same time injure the plant. We have tried Tobacco in all forms, lime, soot, Hellebore, Paris Green, Quassia, Aloes, and all the nostrums usually baneful to insect life, without seeming in the slightest to disturb the "Twitter." We have found, however, that its ravages are worst on light soils; on heavy, stiff clay land we have never known it to do much injury.

Brown and White Scale Insects are often troublesome on old plants of Oleanders, Orange trees, and some hot-house plants. They are best destroyed by being washed or rubbed off, or by using the Kerosene Emulsion. See Insecticides.

Slugs or Snails. These are troublesome both in the open ground and in the green-house. Salt is certain death to them, even in smallest quantities, and when in the open garden, a slight sprinkling of salt over the ground is effectual; but the sprinkling, it must be remembered, must be very slight, as salt, if put on (even as thick as sand is usually strewn on a floor) will kill almost any kind of vegetation. In our green-houses the snails usually feed at night, getting under the benches during the day. We have found a most effectual remedy in strewing a thin line of salt on edge of each bench;—this makes a complete "dead line" for the Slugs or Snails, for they cannot cross it and live. Another plan is to slice up potatoes, carrots, cabbage, or lettuce leaves, to feed on, for which they will leave all other plants. Examine these traps daily, and destroy the captives.

Ants.—These are sometimes very destructive to vegetation, particularly in dry, sandy soils. We have repeatedly suffered serious losses from them, both in our green-houses and out of doors. The most efficacious remedy we have tried is to saturate pieces of sponge with sugar, or to place fresh bones around their haunts; they will leave everything else to feed on these, and when they are thus trapped, can be destroyed by dipping in hot water or burning. Another method is to blow *Pyrethrum* or Persian Insect Powder over them with a bellows. They are killed at once if the powder strikes them in a dry state; but it has no effect if damp, for, when strewed in their haunts, they run over it with impunity.

The Angle Worm, or the common red worm, seen in nearly every soil, in pots or in the open ground, is harmless as far as feeding on the plant goes, for it does not feed on the plants, but bores and crawls around in a way which seriously disturbs the roots of plants, particularly when growing in pots. Some savant has recently given it as his opinion that the Angle Worm is highly beneficial in pulverizing the soil, and that Nature has placed it there for that purpose. We are afraid that there are few cultivators that feel grateful to the Angle Worm for such service, and that most of us would rather be allowed to do our own pulverizing without this "natural" assistance. The Angle Worm is easily destroyed with the following solution: one peck of shell lime in forty gallons of water, allowing the residue to settle at the bottom, and watering the plants with the clear lime water. The caustic of the lime acts on the cuticule of the worms, and is quickly fatal to them.

There are many insects that attack the Cabbage tribe, among the best known of which is that which causes the disease known as "Club Root" (which see). Another enemy of the Cabbage plant, and one that is sometimes even more destructive than the Club Root, is the

Cabbage Caterpillar or Cabbage Worm. This insect is comparatively a new comer in the vicinity of New York, having been, it is believed, imported from Europe. It is produced by a small white butterfly that is seen hovering over the Cabbage patches in spring. It attacks the leaves of the plant, and is such a voracious feeder that it will quickly destroy a whole plantation. We find an excellent remedy for this pest to be White Hellebore powder, which must, however, be put on in the early stage of the plant's existence, as when heading up, of course, it would not be safe to apply it. The past fall and winter our cold-frame Cabbage and Cauliflower plants were attacked by the Cabbage Worm, both in the seed bed in the open field, and also after being transplanted into the frames. One good dusting of White Hellebore powder destroyed them completely on both occasions.

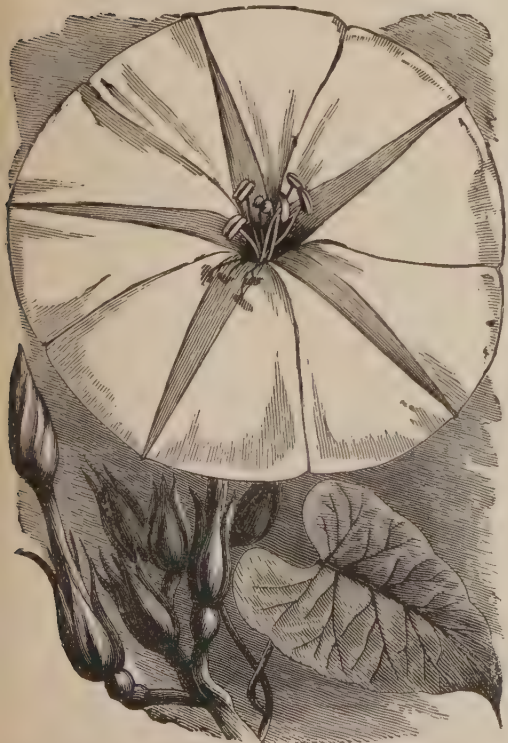
IPOMOPSIS.

IPOMŒA PURPUREA.

IPOMŒA COCCINEA.

ICE PLANT (MESEMBRYANTHEMUM).

IXIA VIRIDIFLORA.



IPOMŒA (CALONYCTION) GRANDIFLORA (MOON FLOWER OR EVENING GLORY).

IRIS GERMANICA.

IRIS HISPANICA.

IRIS SUSIANA.

IRIS ANGLICA.

IRIS KÆMPFERI.

For application when the plants are heading up nothing is more efficacious, or more easy of application, than Persian or Dalmatian insect powder. As it is practically harmless to man, and the higher animals, it can be applied by a bellows, at any stage of the plant's growth, and, if of a good grade, it is certain death to all insects which it strikes. Many southern growers say it is the only effectual, and at the same time, perfectly safe cure for the Cabbage Worm.

There are three kinds of insects which attack the roots of Cabbages after being planted out in the field to head. One is a species of Wire Worm, that imbeds itself in the stem, for which, we regret to say, we can suggest no remedy that will not at the same time kill the plant. Another, of a dull gray color, resembling a caterpillar in shape, is known by the popular and expressive name of Cut-worm, based upon their practice of eating off the young plants at the level of the ground. They are the larvæ of several species of *Noctuidæ*, and are nocturnal in their habits, lying just under the surface of the ground during the day, and feeding at night. They hatch out early in spring, and feed on grass, weeds, etc., and when the ground is cleared and the plants set out, their enforced fast makes them doubly dangerous. The following extract from a communication to *Garden and Forest* may be of service to many:

"Various means have been tried to keep them from the plants—lime, salt, gas-tar and a variety of other repellants have been employed, all with a variable, usually small, degree of success. Later, as the habits of the worms became better known, traps were prepared for them. Holes were driven with a dibble, around the newly-set plants, and the Cut-worms wandering about fell into them, and, being unable to climb up the smooth sides, perished there. Traps were set in the form of chips and short pieces of board, which proved convenient hiding places for the larvæ, and there they could be readily found during the day and destroyed. Still later, balls of grass and succulent leaves were scattered about the fields, and there the worms congregated, and were easily destroyed during the day. More recently, the grass balls were poisoned, by being soaked in a pail of water into which a teaspoonful of London Purple had been stirred, and the Cut-worms were thus killed without the labor attendant upon a daily visitation of the lures. The trapping system with the aid of poisoned lures has, on the whole, proved most satisfactory; but, as in the case of all applications of insecticides, the element of time is a most important factor, and in many cases really determines success or failure.

"There is comparatively little success from lures placed after a field has been set out and where vegetation has started, since the worms will prefer young, growing plants, to the lures, and after the larvæ become full grown and ready for pupation, lures, of course, fail in attracting more than a very few belated specimens. The proper time for a Cut-worm campaign is just after the ground has been prepared for the crop to go in it, and while it is clear and free from vegetation—if possible only a day or two before planting—the poisoned lures should be spread about

liberally, and the vast majority of all the Cut-worms in the prepared ground will be attracted and destroyed. It is, of course, not likely that the destruction will be complete, but the percentage of plants lost will be very much lessened, and will be insignificant in comparison to the damage that would have been otherwise caused." The other is the

Cabbage Maggot. One of the most destructive insects we have to contend with in growing Cabbage or Cauliflower is the Cabbage Maggot. The only remedy is prevention—which requires close observation. Just as soon as the Cabbage or Cauliflower becomes well rooted in the open field after planting out (in the latitude of New York usually about middle of May), close attention will show a small black fly hovering around the plants that deposits usually about twenty eggs, of a whitish color and about the size of a pin's head. Before the eggs hatch out each plant must be fingered around so as to displace them from the stem. This is quickly done, and it is, we believe, the only known remedy to save the crop.

The Curculio or Plum Weevil. This little beetle is one of the greatest orchard pests, attacking not only the Plum, Cherry, Peach and other stone fruits, but also doing serious damage to the Apple. Its attacks are followed by great deformity in the fruit. The Apples are often stung many times and become so gnarled, distorted, and scarred as to be wholly worthless. An almost certain remedy is to use a tablespoonful of London Purple or Paris Green to six gallons of water, syringed on the trees every other day for fifteen days, beginning the operation as the flower begins to drop, as it is just when the fruit is forming that the insect deposits its egg. No danger need be apprehended from the small quantity of the poison used, as it will be all washed from the fruit long before it ripens. Another remedy, which will effectually save a crop in the districts infested by this insect, is to jar the tree in the morning or in cool days, first spreading sheets under the trees to catch the weevils, after which they may be burned. If this is begun as soon as the Plums are formed, and persisted in every few days until they are ripe, a large share of the crop may be saved. This may be thought to be paying rather dear for a crop of Plums, but it is really the only way it can be secured. Many years ago the crop of a Plum orchard under my charge, numbering over a hundred large trees, was saved by this process, while all other Plums in the district, where the jarring of the trees was not resorted to, were completely destroyed. This plan was recommended nearly half a century ago, and no other practicable method has been presented until the recent use of London Purple or Paris Green, applied as already described.

The Phylloxera, which has been so destructive to the Grape vine in Europe, is, fortunately, mostly localized with us thus far, and its ravages have been far from alarming, though many feel apprehensive of the future. Its depredations, which are of a deadly nature, are confined chiefly to the roots, and thus far no certain means for its destruction have been discovered. The Phylloxera has, in a few places, been found quite destructive to

the foreign vine grown under glass, especially in parts of Rhode Island, making it necessary, in some cases, to renew both the vines and the borders.

COLORADO BUG, OR POTATO BEETLE, so destructive some years ago, has now been well-nigh driven off by the persistent use of Paris Green by farmers and gardeners.

Insertion. The manner in which one part is inserted into, or adheres to, or originates from another; as the leaf on the branch, the branch on the stem, etc.

Inula. A word of doubtful origin, but said to be a corruption of *Helenium*. Nat. Ord. *Compositæ*.

A genus of coarse-growing annuals and herbaceous perennials, not worth growing as flowering plants. *I. Helenium* is the *Elecampane*, common in the roadsides throughout the States.

Involucre. A ring or rings of bracts surrounding several flowers, such as the whorled bracts at the base of an umbel, a head, or a single flower.

Involute. Rolled inward; when edges are rolled inward on each side.

Iochro'ma. From *ion*, violet, and *chroma*, color; color of the flower. Nat. Ord. *Solanaceæ*.

A genus of green-house trees or shrubs, natives of western tropical America. It contains about fifteen species, bearing blue, violet, white, yellowish, or scarlet flowers. The fruit is succulent, two-celled, and many seeded, inclosed in a bladdery calyx. *I. lanceolata* and *I. tubulosa* have very showy, rich, deep purplish-blue flowers, and they would doubtless prove hardy in the Southern States.

Ionopsi'dium. From *ionopsis*, violet-faced, and *eidos*, resemblance; alluding to the resemblance to some of the tufted Violets. Nat. Ord. *Cruciferæ*.

A small genus of hardy annuals, natives of Portugal and Algeria. *I. acaule*, the only cultivated species, makes a beautiful little plant for rockeries or shaded situations; its flowers are of a clear lilac, and the foliage of a delicate green. It is increased by seeds and also by runners, which root freely in the damp soil. Introduced 1845.

Iono'psis. From *ion*, violet, and *opsis*, like. Nat. Ord. *Orchidaceæ*.

A small genus of free-flowering, low-growing, beautiful little Orchids. They are difficult to manage, and are, therefore, seldom seen in collections.

Ipecacua'nha. The root of *Cephælis Ipecacuanha*. A Brazilian plant, the cultivation of which has been introduced into India. The roots afford the important emetic, and the only known specific for dysentery.

Ipomœ'a. Morning Glory. From *ips*, bindweed, and *homoios*, similar; alluding to the twining habit of the plants. Nat. Ord. *Convolvulaceæ*.

A very extensive genus of twining plants, consisting of hardy and tender annuals, hardy tuberous-rooted perennials, and green-house perennials. They are remarkable for their showy flowers of white, pink, blue and purple colors. *I. purpurea*, with its varieties, is the common Morning Glory of the garden. It is a native of South America, but has escaped

from cultivation and become thoroughly naturalized. *I. pandurata*, Man-of-the-Earth, a native species, having very large tuberous roots, when well established will cover a very large space, and produce an immense number of very large, pure white flowers. They remain open much longer than the annual varieties. The tuberous-rooted species are increased by division, by cuttings, or from seeds. The beautiful Moon Flower, *Ipomœa (Calonyction) grandiflora*, known also in commerce as *I. noctiphiton*, etc., is a tropical perennial species, with immense pure white, sweet-scented flowers, which, contrary to the habits of this splendid family, open at night instead of the morning. Being a free bloomer, the effect, especially, on a moonlight night, is charming, particularly when it is growing on a tree. This species requires protection during winter, and is increased by cuttings or seeds. *I. Mexicana* and *I. Bona Nox*, natives of Florida and New Mexico, etc., are also white-flowered, night-blooming species, but neither of them is so large or floriferous as the foregoing. *I. Learii*, the blue Dawn flower, a tender perennial species, is perhaps the most beautiful and useful of all the Ipomœas. It is useful in the open air for rapidly covering an outbuilding, a wall, or a trellis, and will flower abundantly from midsummer till fall. In the green-house it will bloom the whole year, but it is well to cut it in rather severely in September to keep it within bounds. The flowers, which are large, and of that pure sky-blue so rare among flowers, are produced in the greatest profusion. It is propagated by cuttings. We have tried many times to raise it from imported seed, but have never found it to come true. *I. leptophylla* is a hardy perennial species of half-climbing habit, with an immense tuberous root, and is a desirable plant. It is found from Nebraska to New Mexico, and is propagated by division and from seed. *I. coccinea*, or Star Ipomœa, a native of the West Indies, bears a profusion of scarlet flowers, and is a very desirable plant. Nearly all the Ipomœas are popular plants, especially with those who have an eye for grace and beauty combined.

Ipomo'psis. Standing Cypress. From *ipo*, to strike forcibly, and *opsis*, sight; alluding to the dazzling color of the flowers. Nat. Ord. *Polemoniaceæ*.

I. elegans and *I. picta* are the only species. They are beautiful hardy biennials, natives of South Carolina and southward. They grow from four to six feet high, and are covered nearly their whole length with brilliant scarlet flowers. Seed should be sown in early summer, in a dry, sandy soil, where the water will not stand in winter; they will be greatly benefited with a slight mulching of leaves, not as a protection against cold, but against wet and sudden changes. This genus is now included under *Gilia*, by some authorities.

I'psea. Derivation of name unknown. Nat. Ord. *Orchidaceæ*.

This genus of Orchids is represented by *I. speciosa*, a beautiful and rare species from Ceylon. The flowers are clear yellow with a carmine stripe on the lip. It requires the same treatment as the *Bletia*, which it resembles in habit; introduced in 1840.

IRE

Iresi'ne. From *eiros*, wool; referring to the wooly aspect of the branches of some of the species. Nat. Ord. *Amaranthaceæ.*

A genus of erect herbs or sub-shrubs, natives of Australia and tropical and sub-tropical America, a single species reaching as far north as Ohio. Those best known in cultivation are very ornamental plants, and are indispensable in all bedding-out arrangements on account of their beautifully-colored foliage. The genus is very closely allied to *Achyranthes.*

Iria'rtea. Named in honor of *Juan Iriarte*, a Spanish botanist. Nat. Ord. *Palmaceæ.*

A small genus of ornamental, tall-growing palms, inhabiting tropical America. Naturally, they sometimes produce aerial roots, which raise the trees from the ground as if on stilts. They require the same treatment as other stove-palms.

Iriarte'lla setigera. A small South American palm formerly included in *Iriartea.* It rarely grows more than fifteen feet high, and has a perfectly straight cylindrical trunk, scarcely more than an inch thick. The Indians on the Amazon and Rio Negro, where this palm grows, in the underwood of the forests, use its slender stems for making their blow-pipes, the weapon commonly employed by them in the pursuit of game, and through which they blow small poisoned arrows with unerring accuracy, and to a considerable distance. These blow-pipes are usually from eight to twelve feet long, and have a bore of about a quarter of an inch in diameter.

Irida'ceæ (The Iris Family). A natural order of herbs with corms, rhizomes, or fibrous roots, and mostly with equitant leaves, and flowers in sheaths. They are found in warm and temperate regions, and abound at the Cape of Good Hope. There are about fifty genera and upward of five hundred species. *Iris, Gladiolus, Crocus*, and *Ixia* are examples.

I'ris. Fleur-de-Luce, or Flower-de-Luce. *Iris*, the rainbow deified; anciently applied to this genus on account of the bright and varied colors of the blossoms. Nat. Ord. *Iridaceæ.*

There are two large and distinct sections into which the *Iris* is usually divided, one with creeping fleshy root-stocks or rhizomes, including such species as *I. Germanica, I. Florentina, I. flavescens, I. squalens*, etc., and numberless varieties having large and handsome flowers, and as they are the easiest to cultivate, they are most largely grown, the other section includes the bulbous kinds or Xiphions, principally represented in cultivation by what are known as the English and Spanish Iris. Both are of Spanish origin, and vary chiefly in the size of the bulbs and flowers, and in the more curious combination of colors as exhibited in the flowers of the former. They should be taken up and replanted every second or third year, as the new bulbs, which are formed every season, are always directly under the old bulb; and thus in the course of a few years the bulbs descend so low as to be out of the reach of the air, and consequently incapable of vegetation. Thus it will be generally found that persons in the habit of growing Irises, are always complaining of

ISM

losing their plants, while the real fault rests with themselves for not taking up their bulbs at the proper time. The bulbous and tuberous-rooted Irises succeed in any light and dry soil. The splendid Chalcedonian Iris is one of the tuberous-rooted kinds; and it not only requires a dry soil during winter, but to be allowed plenty of pure air during the whole period of its growth, or it will be very apt to damp off. Among the species of late introduction is *I. Kæmpferii* (Syn. *lævigata*), from Japan. The plants are perfectly hardy, and are very free-flowering. The flowers are double and single, the colors pure white, purple, maroon, blue, and many with the various colors marbled with white. They grow readily in almost any situation, in full exposure to sun, or in partial shade. They are increased by division, or may be grown readily from seed, which if sown in the open border, will make plants that will flower the second year. These are really grand plants. Scarcely any plants in the flower-garden can compare with them for gorgeous beauty, and they command a prominent place in all gardens. That they do not flower until near midsummer, when the season of the common Iris is past, is an additional recommendation to most lovers of plants.

Irish Heath. *Dabœcia polifolia.*

Iron Tree. The common name of *Parrotia Persica.*

Iron-weed. The popular name of *Vernonia Noveboracensis*, a common plant in moist grounds and along fence rows, growing from two to seven feet high, and bearing bright purple flowers.

Iron-wood. The popular name of two trees that furnish a hard, useful timber, the one *Ostrya*, which is also known as Hop Hornbeam, and the other *Carpinus*, the common Hornbeam, or Iron-wood. Both are common in most of the States.

Iron-wood of Morocco. See *Argania sideroxylon.*

I'satis. A genus of *Cruciferæ*, consisting of erect annual or biennial plants, natives of southern Europe and western Asia, one being found in China. They have undivided leaves, with a bluish bloom, and generally yellow flowers, borne in long, loose, erect, terminal panicles. *I. tinctoria*, the Dyer's wood, is the only species of importance, being cultivated, especially in the north of China, for the blue dye, similar to indigo, obtained from it.

Isme'ne. Peruvian Daffodil. After *Ismene*, the daughter of Œdipus and Jocasta. Nat. Ord. *Amaryllidaceæ.*

A small genus of very handsome bulbs from Peru, which require to be kept perfectly dry during winter, and free from frost. Planted out in spring as soon as the ground is warm and dry, they come into flower in June and July. *I. calathina*, with pure white, very fragrant flowers, and *I. amancæs*, yellow, are excellent for this purpose. As the flowers last well, they are also valuable for winter forcing, and can be brought into bloom in six weeks from the time of planting, and may be had in succession all winter. The flowers are produced in an umbel on a spathe about two feet high. This genus is included by some botanists

under *Hymenocallis*, and by others under *Pancratium*. They are propagated by offsets, and were introduced in 1800.

Iso'lepis. From *isos*, equal, and *lepis*, a scale; alluding to the regularity of the scales. Nat. Ord. *Cyperaceæ*.

I. gracilis is a very pretty, low-growing, fine, rush-like grass, cultivated for a basket plant, a purpose for which it is admirably adapted. Propagated by division. Syn. *Scirpus riparius*.

Isolo'ma. From *isos*, equal, and *loma*, a border; lobes of corolla equal. Nat. Ord. *Gesneraceæ*.

A genus comprising about sixty species of ornamental green-house and stove plants, often confused with *Achimenes* and *Gesnera*, natives of Mexico, Bolivia, Peru, etc. Flowers often scarlet, golden, or spotted; leaves opposite, often slightly villous. Culture similar to *Gesnera* or *Tydea*, which see.

Isolo'ma (of J. Smith). A name given to a genus of Ferns now included under *Lindsæa*.

Isona'ndra. Gutta Percha Tree. From *isos*, equal, and *ander*, the male organ, or stamen; referring to an equal number of fertile and barren stamens. Nat. Ord. *Sapotaceæ*.

I. gutta, the species which yields Gutta Percha, is a large forest-tree, growing sixty to seventy feet high, with a trunk two or three feet in diameter. It is a native of Borneo, Ceylon and Malaya, where there are immense forests of this and kindred species. They are quite ornamental trees, but, from their size, only valuable for the Gutta Percha they produce.

Isopy'rum. From *isos*, equal, and *pyros*, wheat. The Greeks gave this name to a plant resembling *Nigella*, the seeds of which have the same taste. Nat. Ord. *Ranunculaceæ*.

A genus of dwarf, slender, hardy perennial herbs, natives of Europe and temperate Asia. *I. thalictroides* is a very graceful border plant, with feathery, white flowers, and foliage resembling a Maiden-hair Fern. It is of easy cultivation, and is increased by seeds or division of the roots.

Iso'toma. From *isos*, equal, and *toma*, a section; the flowers are equal. Nat. Ord. *Lobeliaceæ*.

A small genus of annuals and herbaceous perennials, formerly included in the genus *Lobelia*. *I. petræa* is a very showy half-hardy annual, with cream-colored flowers. *I. longiflora*, a native of the West Indies, is a most venomous plant, producing dangerous cathartic symptoms. It proves fatal to horses that eat it.

Isotro'pis. From *isos*, equal, and *tropos*, turned; referring probably to the distinctly formed veins in the flowers. Nat. Ord. *Leguminosæ*.

I. striata, from Swan River, constitutes this genus. It is a beautiful little green-house shrub, with a soft and slightly downy stem. The flowers are much like those of the *Chorozema*, clear orange yellow, with rich, deep crimson, forked veins. It was introduced in 1838, and is propagated by cuttings of the young wood.

Italian Rye Grass. *Lolium Italicum.*

I'tea. The Greek name for the Willow, applied

to this genus on account of its rapid growth in damp soil. Nat. Ord. *Saxifragaceæ*.

I. Virginica, the only cultivated species, is a dwarf shrub resembling a willow in habit and foliage; flowers white, produced in great profusion towards the end of summer. Indigenous in wet places, from New Jersey southward, near the coast.

Ivory. Vegetable. The hard albumen of the nuts of *Phytelephas macrocarpa*.

Ivy. See *Hedera helix*.

American. *Ampelopsis quinquefolia*.
German or Parlor. A garden name for *Senecio Mikanioides*.
Ground. *Nepeta Glechoma*.
Japan, or Boston. See *Ampelopsis tricuspidata* (Syn. *A. Veitchii*).
Kenilworth, or Coliseum. *Linaria cymbalaria*.
Mexican. *Cobœa scandens*.
Poison. *Rhus toxicodendron*.

I'xia. From *ixia*, bird-lime; in reference to the clammy juice. Nat. Ord. *Iridaceæ*.

A genus of beautiful Cape bulbs, with narrow ensate leaves, and slender, simple, or slightly branched stems, bearing spikes of large showy flowers, various in color, and exceedingly attractive when fully expanded by sunshine. These flowers have a salver-shaped perianth, with a slender tube, and six-parted, spreading, equal limb, three stamens inserted in the throat, with filiform filaments and versatile anthers, and a three-celled ovary with numerous ovules, terminating in a filiform style, and three narrow linear con-duplicate recurved stigmas. *I. viridiflora*, which has large sea-green flowers with black markings at the base of the segments, is a very singular-looking, as well as very beautiful plant. There are many species and some varieties, and the greater part of them are worthy of cultivation. They are half hardy, but with us should be grown in pots in the green-house; about mid-winter they will begin to show their handsome flowers freely. When done flowering they should be dried off till September or October, which is the proper time to start them again. They grow well in a light loam with the addition of leaf mould and sand, and are propagated by offsets. First introduced in 1757.

Ixia'nthes retzioides. A rare and beautiful plant of the Nat. Ord. *Scrophulariaceæ*, native of western South Africa. It is an erect shrub, with lanceolate leaves, densely crowded into ternary whorls. The flowers are not unlike those of a Pentstemon, but bright yellow. It grows naturally almost in the water, and in drier places becomes stunted and depauperated. Introduced in 1882.

Ixioli'rion. From *ixia*, and *leirion*, a lily; literally, Ixia-like Lily. Nat. Ord. *Amaryllidaceæ*.

A small genus of rare and beautiful little hardy bulbs from Asia Minor. They have simple erect stems, with terminal clusters or racemes of sky-blue flowers, and are propagated by seeds or offsets. Introduced in 1844.

Ixo'ra. Named after *Iswara*, a Malabar deity, to whom the flowers of some of the species are offered. Nat. Ord. *Rubiaceæ*.

JAB

A genus of Indian and tropical African shrubs, with corymbs of handsome flowers of a scarlet, pink, or white color, and frequently having an agreeable fragrance. The history of *Ixora coccinea*, the best known species, is rather curious. It is a native of China and some of the East India Islands, where it is worshipped as a sacred plant, and where it is said to form a small tree about six feet high, rising with a single stem, and having its head formed entirely of clusters of bright scarlet and yellow flowers, whence it has received the name of *Flamma Sylvarum*, or the Tree of Fire. This plant was first introduced in 1690; but it was soon lost and its existence was even doubted until it was re-introduced about a hundred years afterward by the celebrated Dr. Fothergill. The Ixoras are really magnificent plants, and should be grown in a warm temperature. They are propagated from cuttings, and should be grown in a sandy loam and leaf mould. When repotted, which should be done immediately after flowering, the plants will be benefited by being plunged into a moderate bottom heat, which induces

JAP

them to root freely, and to form the growth quickly and with vigor, thus enabling them to become properly ripened before winter. In the spring, when the flower heads begin to appear, a liberal regimen should be adopted, and liquid manure occasionally applied. At this time, and, indeed, throughout the summer, the foliage should be frequently syringed, in order to keep it clear of insects, and to preserve its rich green and glossiness. As soon as the flowers are expanded, and onward till the growth is complete, the plants should be shaded from powerful light, and through the summer a moderately moist atmosphere of about 75° should be kept about them. In winter the ordinary attention required by hothouse plants will suffice. The taste for hardwooded plants is on the increase. Among the best is the Ixora, which should be more generally grown; over twenty species varying in color, from pure white to deep orange-scarlet, are now in cultivation. *I. coccinea superba*, *I. eminens*, *I. illustris*, *I. decora*, *I. ornata*, *I. Williamsii* and others, are free flowering and easily grown species.

J.

Jaboro'sa. From *Jaborose*, the Arabic for the Mandrake, an allied plant. Nat. Ord. *Solanaceæ*.

A small genus of South American herbaceous perennials. The flowers are funnel-shaped, white or green. None of the species has any special attractions.

Jack-in-the-Pulpit. See *Arisæma*.

Jaca, or **Jack-Tree.** The native name of *Artocarpus integrifolia*, the Bread Fruit of the East Indies.

Jacara'nda. Its Brazilian name. Nat. Ord. *Bignoniaceæ*.

A genus of very handsome, lofty evergreen trees, with the elegant habit of the fine-leaved *Acacias*. They have bluish flowers in terminal panicles, but their size prevents their cultivation in the green-house.

Jacobæ'a. A synonym of *Senecio*.

Jacobæan Lily. See *Sprekelia*.

Jacobi'nia. A genus of *Acanthaceæ*, proposed to include *Cyrtanthera*, *Pachystachys* and *Sericographis*.

Jacob's Ladder. See *Polemonium*.

Jacquemo'ntia. Named after *Victor Jacquemont*, a traveler in the East Indies. Nat. Ord. *Convolvulaceæ*.

A small genus of green-house evergreen twiners, intermediate between *Ipomœa* and *Convolvulus*. They are natives of Mexico and the East Indies, and are propagated by cuttings. Introduced in 1808.

Jacqui'nia. Named in honor of *N. J. de Jacquin*, once Professor of Botany at Leyden. A genus of handsome evergreen bushes of the Nat. Ord. *Convolvulaceæ*, peculiar to America, where they range from Florida to Brazil, and are usually found near the coast. *J. armillaris* is known by the West Indian settlers as Bracelet Wood; the shiny brown and yellow seeds being made into bracelets. Introduced to cultivation in 1768.

Jalap. See *Exogonium*.

Jamaica Dogwood. See *Piscidia*.

Jamaica Mignonette. (Henna Plant.) See *Lawsonia*.

Jamaica Pepper. A name given to Allspice, *Pimento vulgaris*, which see.

Jame'sia. Named after *Dr. Edion James*, who first discovered the plant. Nat. Ord. *Saxifragaceæ*.

J. Americana, the only species, is a medium-sized hardy shrub, with opposite serrated leaves and white flowers, like a *Deutzia*, blooming nearly all summer. It is a native of Mexico and the Rocky Mountains, and is increased by seeds or cuttings of the ripened wood. Introduced in 1865.

Jamestown Weed. See *Datura*.

Janipha. See *Manihot*.

Japan Allspice. See *Chimonanthus*.

Japan Cedar. See *Crytomeria*.

Japan Clover. See *Lespedeza*.

Japan Cypress. See *Retinospora*.

Japanese Toad Lily. See *Tricyrtis*.

Japan or **Climbing Fern.** See *Lygodium*.

Japan Lacquer Tree. *Rhus vernicifera*.

Japan or **Boston Ivy.** See *Ampelopsis* (*Veitchii*) *tricuspidata*.

Japan Maple. *Acer Japonicum*.

Japan Medlar, or **Japan Persimmon.** See *Diospyros*.

Japan Pepper. See *Xanthoxylum*.

Japan Plum. See *Eryobotrya*.

Japan Quince. See *Cydonia*.

JAP

Japan Varnish Tree. *Ailantus glandulosus.*

Japan Yew. See *Podocarpus.*

Jasio'ne. An ancient name used by Theophrastus. Nat. Ord. *Campanulaceæ.*

A genus of hardy herbaceous perennials and annuals, mostly natives of Europe and North Africa. All of the species have very pretty blue flowers, though not of sufficient importance to warrant their introduction in the garden. *J. montana* is a pretty annual, common in the healthy and moorland districts of Great Britain. It is commonly known as Sheep's Scabious, from its resemblance to the Scabious, and from its abundance in sheep-walks.

Jasmine or **Jessamine.** See *Jasminum.*
Cape. See *Gardenia florida.*
Carolina. *Gelsemium nitidum.*

Jasmineæ. A tribe of the Nat. Ord. *Oleaceæ.*

Jasmi'num. Jasmine. From *Ysmym*, the Arabic name. Nat. Ord. *Oleaceæ.*

The delicacy and fragrance of the flowers of the Jasmine have often afforded metaphor and theme to the poet. Among the species are found equally desirable subjects for decorating the hot-house, the green-house, arbors, or other objects in the open air, and combining in every instance freedom and elegance in the general habit of the plants, with all that is desirable in floral embellishments. The hot-house and green-house species should be frequently fumigated through the summer, as they are extremely liable to attacks from aphis and other insects. The hardy kinds grow freely in almost any situation, and only require to be kept trained in the desired form, without, however, reducing them to a rigidly formal outline, to make them most ornamental objects in almost any position. Most of the species are from the East Indies. *J. grandiflorum* is one of our best known winter-flowering plants, and is largely used for cut flowers. It is propagated by cuttings, which root freely, and when well grown form good plants the first season. Introduced in 1629.

Ja'tropha. From *iatros*, physician, and *trophe*, food; referring to its medicinal qualities. Nat. Ord. *Euphorbiaceæ.*

A widely-distributed genus of herbs and evergreen shrubs, principally of economic value, found chiefly in South America. None of the species are valuable as flowering or ornamental plants, though *J. podograria* is sometimes grown for its curious gouty stems, *J. urens*, common on the coast from Virginia, southwards, from its stinging properties, is generally known by its popular names, Tread-Softly, and Spurge-Nettle.

Jefferso'nia. Twin-leaf. Named in honor of *Thomas Jefferson.* Nat. Ord. *Berberidaceæ.*

J. diphylla, the only species, is a pretty little plant, common in woods from New York to Wisconsin and southward. It is sometimes called Rheumatism Root, from its supposed medicinal properties.

Jerusalem Artichoke. See *Helianthus.*

Jerusalem Cherry. See *Solanum capsicastrum.*

Jerusalem Sage. See *Phlomis.*

Jerusalem Thorn. See *Parkinsonia.*

Jessamine. A popular corruption of *Jasmine.*

JUD

Jewel Weed. See *Impatiens.*

Jimson Weed. See *Datura.*

Job's Tears. See *Coix lachryma.*

Joe-Pye Weed. Trumpet Weed. Popular names of *Eupatorium purpureum.*

Johnson Grass. *Sorghum halepense.* The name Johnson Grass, which is the one most generally adopted in this country, originated from William Johnson of Alabama, who introduced the grass into that state from South Carolina about 1840. Its chief value is for hay in regions where other grasses fail on account of drought. If cut early, the hay is of good quality, and several cuttings may be made in a season. The late Mr. Howard, of Atlanta, Ga., a careful and practical farmer and investigator, said of it, after an experience of forty years, that this grass was preferable to all others that could be grown in the South. Its analysis shows it to be more nutritious than even sweet corn fodder. Its seeds are as large as those of broom corn, and its leaves are long and tender. The stem reaches a height of six feet. Its perennial growth, and the firm hold it takes of the soil, in which it spreads with great rapidity, give it a high value for a fodder grass in the South.

John's, St., Bread. *Ceratonia siliqua.*

John's, St., Wort. The genus *Hypericum.*

Jointed Charlock. A name frequently given to the Wild Radish, *Raphanus raphanistrum.*

Joint Grass. A common name of one of our native grasses, *Paspalum distichum.*

Joint Weed. A popular name for *Polygonum articulatum.*

Jo'nesia. Named after *Sir. W. Jones*, Nat. Ord. *Leguminosæ.*

A small genus of shrubs or low-growing trees inhabiting the East Indies. They have bright glossy leaves, about a foot long, made up of three to six pairs of leaflets. The flowers are bright scarlet, in terminal round clusters, resembling the *Ixora.* Some of the Japanese species have clusters six to eight inches across, and succeed best when grown in heat. They are propagated by cuttings, and were introduced in 1820. Syn. *Saraca.*

Jonquil. See *Narcissus.*

Joseph's Coat. See *Amaranthus tricolor.*

Jubæa. After *Juba*, ancient King of Numidia. Nat. Ord. *Palmaceæ.*

J. spectabilis, the only species, is the Coquito Palm of Chili. It has a tall, straight trunk, bearing a crown of large pinnate leaves, and branching spikes of dark yellow, distinct male and female flowers, inclosed in a double spathe. In Chili, a sweet syrup, or Palm-honey, is prepared by boiling the sap of this tree to the consistency of molasses, and it forms a considerable article of trade, being as much esteemed for domestic use as sugar. The sap is obtained by felling the trees and cutting off the crown of leaves, when it immediately begins to flow, and continues for several months, until the tree is exhausted, provided a thin slice is shaved off the top every morning. Each tree yields about ninety gallons. The nuts, trunks, and leaves are used for various economic purposes. Young plants are obtained from seeds, and require to be grown in a plant-stove.

Judas Tree. See *Cercis.*

Juglanda'ceæ. A natural order of trees with alternate, pinnate, stipulate leaves and unisexual flowers. They are chiefly natives of North America and the Indies. *Juglans regia* is the English Walnut or Madeira Nut of the fruit stores. *Carya alba* is the American Hickory Nut. *Juglans nigra* is the Black Walnut. There are five genera and about thirty species, all valuable timber trees, much prized by cabinet makers. *Juglans* and *Carya* are examples of the order.

Ju'glans. Walnut. From *Jovis*, the heathen god, and *glans*, a nut. Nat. Ord. *Juglandaceæ.*

A well-known genus of hardy deciduous trees. *J. regia*, the common English Walnut or Madeira-nut tree, is a native of Persia, and was introduced into English gardens in 1562. This species makes a beautiful tree for the lawn as far north as New York, but it rarely ripens fruit. There are several specimens of this tree on the grounds of Mr. Manice, Queens, Long Island, having favorable situations, and they seldom fail of ripening a fair crop of nuts. There is also a long avenue of old trees of this Walnut in Westchester County, N.Y., and the crop seldom fails. *J. cinerea* is our common Butter-nut, and *J. nigra* the well-known Black Walnut.

Jujube. See *Zizyphus Jujube.*

Ju'ncus. Rush. Bog-Rush. Linnæus derived the name from *jungo*, to join; in allusion to the first ropes having been made from rushes. Nat. Ord. *Juncaceæ.*

The Rush is a very extensive, and almost universally distributed genus of marshy plants. Some of the species are very troublesome to the farmer, when once started in moist meadows. The destruction of the grass is certain, unless a constant warfare is kept up. Some of the species, in their native countries, are of the greatest value. In Holland, the Rush is planted with great care on their sea embankments, to prevent, by its roots, the action of the tides from washing away the earth. When these Rushes have attained their full height, which is in summer, they are cut down, tied into bunches, dried, and taken into market, where they are wrought into baskets and other useful articles. In Japan the manufacture of Rush matting is carried to a great extent. For this purpose, *J. conglomeratus*, or hard Rush, is used; and for their best floor-mats, *J. effusis*, or soft Rush, is employed. These mats, which are at once carpets and the only beds used by the Japanese, are soft, elastic, and often three or four inches thick. They are very closely plaited, and the interstices afterward filled with rice paper. Some law appears to regulate the size of these mats, for, according to Thunberg, they are of precisely the same dimensions throughout all parts of the kingdom, with the exception of those in the imperial palace of Jeddo. The regulation size is six feet by three, with a narrow blue or black border. They make a lighter sort of matting of the same material, which is used as window blinds, and to protect the transparent paper which forms a substitute for glass. Of some harder species they even make shoes for their horses, which come up to the pastern joint, and cover the hoof. Bags made of Rushes are extensively used in the Eastern countries. Sugar sent from the Mauritius is always in bags made of Rushes, which are very strong and durable. A very handsome plant of the Bulrush family has been lately introduced from Japan, with foliage as strikingly variegated as *Eulalia Japonica zebrina.* Like that plant, the variegation runs horizontally around the hollow leaves. The bands of bright yellow are about two inches apart, delicately shaded into the green, and the whole appearance of the plant is one of unique beauty. It may prove to be hardy. It was introduced here from Japan by Thomas Hogg, but sent to England for distribution. See *Scirpus.*

June Berry. See *Amelanchier.*

Juniper. See *Juniperus.*

Irish. *Juniperus communis, var. hybernica.*

Swedish. *Juniperus communis, var. suecica.*

Juni'perus. Juniper. From the Celtic *Juniperus*, rough. Nat Ord. *Coniferæ.*

An extensive genus of evergreen trees and shrubs, the more conspicuous of which are *J. communis*, the common Juniper, indigenous in dry, rocky places in New Jersey and northward. The berries of this species are much used in the manufacture of gin. *J. Virginiana*, the well-known Red Cedar, is found in all parts of the country, but more particularly from Virginia southward. *J. Bermudiana*, Bermuda Cedar, is used for lead pencils as well as the Red Cedar, the latter being used for the best.

Jupiter's Beard. See *Anthyllis.*

Jurinea. Derivation not explained. Nat. Ord. *Compositæ.*

A genus of about forty species of hardy herbaceous perennials, natives of southern Europe and western and central Asia. Though occasionally seen in cultivation, none of the species is of much horticultural value. They are increased by seeds or by division of the roots in spring.

Jussiæ'a. Named in honor of the celebrated family of *Jussieu.* An extensive genus of *Onagraceæ*, consisting of herbs, or, more rarely, shrubs, growing in marshes or ponds throughout the tropics, a few reaching to sub-tropical regions. They have white, or yellow flowers, and alternate, very frequently, membraneous and entire leaves. Some of the species are astringent, as *J. villosa*, from India, and *J. Caparossa*, and *J. villosa*, from Brazil, where, also, occurs, *J. pilosa*, which yields a yellow dye. *J. decurrens*, reaches north as far as Virginia.

Justi'cia. Named after *J. Justice* a celebrated Scotch horticulturist. Nat. Ord. *Acanthaceæ.*

An extensive genus of tender annuals and biennials, green-house herbaceous perennials, and green-house shrubs. They are natives of the East Indies, with a few in South America and the West Indies. Many of the species are mere weeds. Some of the green-house shrubs are ornamental and desirable, their long spikes of red and purple flowers being very showy. The beautiful bright yellow species known best as *J. calotricha*, and *J. flavicoma*, are now placed under *Schaueria*, which see. They are easy of cultivation, and are propagated by cuttings.

Jute. The fibre of *Chorchorus capsularis* and *C. olitorius.*

K.

KAD

Kadsu'ra. The Japanese name. Nat. Ord. *Magnoliaceæ.*

A small genus of half-hardy evergreen trailing plants, with white or yellow flowers. Natives of Japan. Some of the species are under cultivation, but are not of special interest.

Kæmpfe'ria. Named after *Kæmpfer*, a German naturalist. Nat. Ord. *Zingiberaceæ.*

A genus of East Indian herbaceous perennials, with singular tubular-shaped flowers, that appear before the leaves, from very short stems. *K. Gilbertii* has tufted, oblong-lanceolate, dark green leaves, slightly undulated, and bordered by a broad and very conspicuous band of white. A very attractive and desirable variegated plant, introduced from Moulmein in 1882. The roots of some of the species have an aromatic fragrance, and are used medicinally and for perfumes.

Kaffir Bean Tree. See *Schotia.*

Kaffir Lily. See *Schizostilis.*

Kaki. The Japanese Persimmon. See *Diospyros.*

Kale. See *Borecole.*

Kala'nchoe. The Chinese name of one of the species. Nat. Ord. *Crassulaceæ.*

A very pretty genus of succulent plants, natives of tropical Africa, but also found in tropical Asia, at the Cape, and in Brazil. They do well in a light sandy loam, and produce rather large flowers, usually in many-flowered paniculate cymes, the color being yellow, purple, or scarlet. The leaves are fleshy, opposite, sessile or petiolate, entire, crenate, or pinnatifid. They are very interesting plants, and worthy of a place in the greenhouse. *K. acutifolia* has divided, bronzy leaves, and altogether is a beautiful plant, and is propagated readily from cuttings placed in sand. First introduced in 1781. *K. carnea*, a recent introduction from south Africa, with delicate pink flowers, blooming during the winter months, is of easy culture, is very floriferous, and succeeds well in ordinary green-house temperature. The flowers are borne in large clusters, are of a wax-like consistency, and last a long time in perfection.

Ka'lmia. Named after *Peter Kalm*, a Swedish botanist. Nat. Ord. *Ericaceæ.*

A genus of evergreen shrubs, growing from four to ten feet high, common from Maine to Georgia, usually found on mountain sides or dry waste places, but sometimes also along brook sides. *K. latifolia*, Calico Bush, is the common Laurel of the United States, and is certainly one of the most beautiful of evergreens, whether we regard the deep verdure of its foliage or the abundance of its exquisitely elegant, delicate pink, rose, or nearly white flowers, produced from May to July. It is generally supposed that this shrub cannot be transplanted from the woods with any certainty of success, but this is a mistake. Take the precaution to prepare a bed or border, with a soil as nearly like the one you find them in as possible, and which is usually

KEN

composed, in a great measure, of leaf-mould; take up plants of a small size, being careful not to cut the roots, and not to let them get dry, and get them into the border as soon as possible after taking them up; then cut well back, and very few will fail to make elegant plants, which will flower freely the second year. After one removal they may be taken up and shifted as often as desirable, with as little difficulty or danger as any of our border shrubs. *K. angustifolia*, Sheep Laurel, or Lambkill, is a dwarf-growing, narrow-leaved species, with smaller flowers, but of a bright crimson color. The leaves are generally supposed to be poisonous to sheep and lambs; hence the two common names.

Kalosa'nthes. A synonym of *Rochea*, which see.

Kansas Gay Feather. See *Liatris pycnostachya.*

Kara'tas. A genus of *Bromeliaceæ*, comprising about a dozen species of herbaceous perennials, natives of the West Indies, tropical South America, and Brazil. They are generally rather coarse, long-leaved, spinous plants, though *K. Innocentii* and *K. spectabilis* are very showy species. They are of easy culture. Syns. *Nidularium*, *Bromelia*, etc.

Katherine's, St., Flower. *Nigella Damascena.*

Kaulfu'ssia. In honor of *Frederic Kaulfuss, M.D.*, Professor of Botany at Halle. Nat. Ord. *Compositæ.*

A small genus of beautiful little hardy annuals from the Cape of Good Hope. The flowers are of various colors, blue, rose, white and violet, somewhat resembling an Aster. This genus is now called *Charieis*, *K. amelloides* being known as *C. heterophylla*; the name going by priority to the following genus of Ferns.

Kaulfu'ssia. A very distinct genus of Ferns, found in India and Java, with thick rhizomes and coarse terminal fronds. The fronds of *K. æsculifolia*, the only described species, are like a Horse-chestnut leaf, and the under surface is dotted over with copious stomata-like pores. Closely allied to *Marattia.*

Kauri, or Kawrie Pine. See *Damarra Australis.*

Keel. When the mid-rib of a leaf or petal is sharp and elevated externally it is called a keel.

Keferste'nia. A synonym of *Zygopetalum.*

Kenilworth Ivy. See *Linaria.*

Kenne'dya. Named in honor of *Mr. Kennedy*, of the firm of Lee and Kennedy, celebrated English nurserymen. Nat. Ord. *Leguminosæ.*

A genus of free-flowering, evergreen green-house climbers, remarkable for their beautiful racemes of pea-shaped flowers, which are of various colors, scarlet, blue, purple, pink and variegated. They are highly ornamental, and useful in the green-house for cut flowers; and are increased readily by cuttings of short side shoots, well hardened. Introduced in 1824 from New Holland.

KAULFUSSIA.

JACOBÆA (DOUBLE).

KOHL RABI (EARLY WHITE VIENNA).

JONQUILS (DOUBLE).

JASMINUM HIRSUTUM.

KENTIA CANTERBURYANA.

LAVANDULA (LAVENDER).

LANTANA.

KENTIA BELMOREANA.

KŒNIGA (SWEET ALYSSUM).

LAGERSTRŒMIA.

LACHENALIA PENDULA.

KEN

Ke'ntia. In honor of *Lieut.-Colonel Kent.* Nat. Ord. *Palmaceæ.*

A small genus of Palms, separated from *Areca*, chiefly on account of the shape and substance of the seed; in all other respects they are identical. *K. sapida* is the most southern known Palm, being found in New Zealand, two or three degrees further south than any representative of the order in either hemisphere. The natives use the young flower spikes as an article of food. *K.* (Syn. *Hedyscepe*) *Canterburyana* is an exceedingly ornamental plant, useful for decorative purposes. It is called in its native country the "Umbrella Palm." A number of the species are now under cultivation. Young plants are obtained from seed.

Kentio'psis. From *Kentia*, and *opsis*, a resemblance; on account of its likeness to *Kentia.* Nat. Ord. *Palmaceæ.*

A genus of very pretty Palms, closely allied to *Kentia.* The leaves of *K. divaricata* when young are of a fine red color. Natives of New Caledonia. Introduced in 1876.

Kentucky Blue Grass. See *Poa pratensis.*

Kentucky Coffee Tree. See *Gymnocladus.*

Ke'rria Japonica. An old favorite in the garden, with both single and double flowers, to which has lately been added a very pretty variety with variegated leaves. These have been transferred to the genus *Corchorus*, which see.

Kidney Bean. See *Phaseolus vulgaris.*

Kidney Vetch. See *Anthyllis.*

King Plant. *Anæctochilus setaceus.*

Kinnikinnik. Common name of *Cornus sericea.*

Kle'inia. Named by Linnæus in honor of *James Henry Klein*, a German botanist. Nat. Ord. *Compositæ.*

A small genus of curious succulent plants from Africa. Some are of upright habit, and others trailing or creeping. A few have been introduced into the green-house, and are grown for basket plants. *K. articulata*, or Candle Plant, is very curious and easily grown; propagated by cuttings. Syn. *Senecio.*

Kni'ghtia. Named after *Thos. A. Knight*, a celebrated English pomologist. Nat. Ord. *Proteaceæ.*

A genus comprising three species of trees, or shrubs, one of which is from New Zealand, and the two others, from New Caledonia. *K. excelsa*, the only species yet introduced, is an ornamental evergreen tree, growing in its native country to the height of 100 feet, and having much the habit of a Lombardy Poplar. The wood of this tree is mottled with red and brown, and is largely employed in making furniture.

Knight's Spurs. An old name for *Larkspur.*

Knight's Star Lily. See *Hippeastrum.*

Knipho'fia. Named after *J. H. Kniphof*, Professor of Medicine at Erfurt, 1704–1763. Nat. Ord. *Liliaceæ.*

This genus of half-hardy herbaceous plants is usually known as *Tritoma*, but the name here given is a prior one, and therefore the more correct. See *Tritoma.*

Knot-Berry. *Rubus Chamæmorus.*

Knot-Grass. *Polygonum aviculare.*

KRA

Knot-Weed. *Centaurea nigra*, also the genus, *Polygonum.*

Kno'xia. Named after *Robert Knox*, who lived many years in Ceylon. Nat. Ord. *Rubiaceæ.*

A small genus of rather pretty, low-growing green-house evergreens, with small white or pink flowers. Propagated by cuttings; introduced from Bengal in 1828.

Kœle'ria. A small genus of grasses inhabiting the higher altitudes of northern Europe.

Kœlreute'ria. Named after *Kœlreuter*, once Professor of Natural History at Carlsruhe, the father of hybridizing plants. Nat. Ord. *Sapindaceæ.*

K. paniculata, the only species, is a deciduous shrub or low-growing tree, a native of China. It has pinnate foliage with an odd leaflet. The flowers are yellow, disposed in terminal spreading clusters, and are succeeded by large bladdery capsules, which render the tree conspicuous till late in autumn. This tree is hardy in the vicinity of New York and southward.

Kœ'niga. Sweet Alyssum. In honor of *Charles Kœnig*, Superintendent of the Natural History Department of the British Museum. Nat. Ord. *Cruciferæ.*

K. maritima is a pretty and well-known hardy annual. *K. m. major* has flowers nearly as large as Candytuft. Sow the seed in early spring; it usually sows itself, coming up freely where once sown. *A. m. plena*, a double variety, is valuable for cut flowers. *K. m. varieguta* has variegated leaves, and is a pretty and useful plant. A more recent variety with double flowers has even finer variegation. The last three named are propagated by cuttings, as they do not seed.

Kohl-Rabi. *Brassica oleracea Caulo-rapa.* Kohl-rabi is a very distinct vegetable not very largely cultivated except by Germans. It comes between the Cabbage and Turnip, and is generally used as a substitute for the latter. The upper part of the stem swells into a large fleshy head above ground, resembling a Cabbage. Kohl-rabi has several advantages over some other vegetables, and consequently deserves a place in gardens. It is exceedingly hardy, withstanding even severe frosts, and also resists drought much better than the Turnip. The varieties mostly cultivated are the Early Purple and Early White Vienna, both dwarf and useful sorts; they are not good if allowed to get old and large before being used.

Ko'psia. Named after *Professor Kops*, the author of a Botanical Dictionary of reputation. Nat. Ord. *Apocynaceæ.*

K. fruticosa, the only species, is a native of Pegu, Japan. It is an exceedingly ornamental green-house evergreen shrub, producing flowers similar to the green-house species of *Vinca*, several times during the season. The color is red and extremely showy. It is increased by cuttings; introduced in 1818.

Krame'ria. Named after the two *Kramers*, German botanists. Nat. Ord. *Polygalaceæ.*

A small genus of ornamental green-house evergreen shrubs. *K. triandra* is remarkable for its entire, obovate, acuminate leaves, covered on both sides with silky hairs. In Peru an extract, which is a mild astringent, is made from it. An infusion of the roots of one

of the species is blood-red, and is largely used in adulterating port wine. The species are natives of South America.

Kreysi'gia. Named after *F. L. Kreysig*, a German botanist. Nat. Ord. *Liliaceæ*.

K. multiflora, the only species, is a very pretty, half-hardy, herbaceous perennial, having a roughish, simple stem, and a knotty rhizome. It is of easy culture and is increased by divisions in spring. Introduced from New South Wales in 1823.

Kri'gia. Dwarf Dandelion. In honor of *Mr. David Kreig*, a German botanist. Nat. Ord. *Compositæ*.

A very pretty little annual, with flowers resembling miniature Dandelions. It is quite common in dry grounds from New York southward.

Ku'hnia. Dedicated to *Dr. Kuhn*, of Pennsylvania, who brought the living plant to Linnæus. Nat. Ord. *Compositæ*.

A genus of hardy herbaceous perennials, of but little interest except in botanical collections. *K. Eupatorioides* is common in dry soils from New Jersey to Wisconsin, and southward.

Ku'nthia. Named after *C. S. Kunth*, a Prussian botanist. Nat Ord. *Palmaceæ*.

K. Deppeana, a rare palm, the only species, allied to Areca, is a native of New Grenada. It is propagated by seeds, and grows freely with ordinary green-house treatment. Syn. *Chamædorea elegans*.

Ku'nzea. Named after *Gustav Kunze*, a botanist and physician of Leipsic. A genus of *Myrtaceæ*, comprising a number of species of green-house shrubs, often heath-like, confined to Australia. Flowers red, or white, in dense terminal spikes. Only two species are in cultivation. Propagated by cuttings of the half ripened wood.

L.

Labellum. Lip; or rather the lower lip only. The third petal of an Orchid, usually turned toward the lower front of the flower, and very different from the remainder; also a similar petal in other flowers.

Labia'tæ. An extensive natural order of herbs, or undershrubs, with square stems, opposite and exstipulate leaves, and flowers in clustered centrifugal cymes, or crowded into spikes. This order forms one of the most natural groups of plants; the characters of its members are so uniform that it may be called monotypic, as if all the species could be comprehended in a single genus, and the discrimination of its genera is hence often very difficult. They are natives of temperate climates. Many of them are carminative, and yield volatile oils. Mint, Sage, Rosemary, Lavender, Basil, Horehound, Patchouly, Savory, Thyme, and Marjoram belong to this order, which contains upwards of 100 genera, and about 2,500 species. *Coleus*, *Lamium*, *Salvia*, *Perilla*, and *Cunila* are well-known representatives of the order.

Labiate. Having lips; a term applied to that form of a monopetalous calyx or corolla which is separated into two unequal divisions, the one anterior and the other posterior, with respect to the axis.

Labi'chea. Named after *M. Labiche*, a French naval officer. Nat. Ord. *Leguminosæ*.

A genus of five species of evergreen shrubs, allied to Cassia, natives of Australia. *L. lanceolata*, the only species now in cultivation, has trifoliate leaves, and bright yellow flowers, borne in axillary racemes. It was introduced from western Australia in 1840.

Labi'sia. Spoon-flower. From *labis*, a spoon; in allusion to the form of the corolla divisions, which resemble the bowls of small spoons. Nat. Ord. *Myrsináceæ*.

A genus comprising a few species of glabrous or puberulous shrubs, with the habit of Pothos; natives of the Malayan Archipelago. *L. Maloniana*, introduced from Borneo in 1885, has broad, lanceolate, velvety, dark green leaves, irregularly marked with pale green down the middle; red and purple when young. Stem copper-colored, spotted white. *L. pothoina* is a very pretty plant, producing clusters of small, rosy-white flowers.

La'blab. A genus of tropical pulse, more usually included in *Dolichos*, which see.

Labrador Tea. *Ledum latifolia*. This is a shrub growing from two to five feet high, common in swamps and bogs, North and West. The leaves were formerly used as a substitute for Tea, whence the common name.

Labu'rnum. See *Cytisus Laburnum*.

Lacæ'na. One of the names of *Helen of Troy*, applied because of the beauty of the plant. Nat. Ord. *Orchidaceæ*.

A genus of epiphytal Orchids. *L. bicolor*, the original species, is a native of Guatemala, and has long, pendulous racemes of flowers of a greenish-yellow color, the lip marked with purple about the center. They require a hot-house, and should be grown in flat baskets or pans, in leaf-mould and sphagnum moss, and are increased by division in spring, after blooming. Introduced in 1843.

Lace Bark. See *Lagetta*.

Lace-leaved Plant. See *Ouvirandra*.

Lacerate. Torn; having a torn appearance.

Lachena'lia. Cape Cowslips. Named after *W. de Lachenal*, a botanical author. Nat. Ord. *Liliaceæ*.

An extensive genus of very interesting and showy bulbous plants from the Cape of Good Hope. *L. pendula*, *L. tricolor*, and *L. quadricolor* are the kinds mostly cultivated in the green-house. They have long, lanceolate leaves,

often spotted, and erect flower-scapes bearing pendulous flowers, the yellow color predominating. They should be potted in October, in light fibrous soil, and only moderately watered until after flowering, then more freely until they show signs of ripening off. They should be kept in the pots dry during summer, and are propagated by offsets. Introduced in 1774.

Lachnæ'a. From *lachne*, down; referring to the downy clothing of the flower heads. Nat. Ord. *Thymelaceæ*.

An interesting genus of green-house evergreen shrubs from the Cape of Good Hope, all but one with white flowers. The heads of the flowers are usually covered with fine wool, giving them a singular appearance. They are increased by cuttings, and should be kept in the shade during summer.

Lachna'nthes. The Red Root. From *lachne*, wool, and *anthos*, a flower; in allusion to the flowers, which are woolly. Nat. Ord. *Hæmadoraceæ*.

L. tinctoria, or Red Root, is common in sandy swamps, from New Jersey southward. The roots were formerly used for a red dye, whence the popular name. "*L. tinctoria*, commonly known as Paint Root, abounds in the Southern States, and is said to have an important bearing on the agriculture of those States, from the singular fact claimed for it that when its roots are eaten by white pigs, it fatally poisons them, while black pigs eat the roots with impunity; and hence the preponderance of black pigs in the Southern States. This extraordinary statement is made by Charles Darwin, who gives Dr. Jeffries Wyman as his authority. The same testimony has recently been given by Dr. P. Statesbury, of Clinch County, Georgia."—*American Agriculturist*, March, 1876.

Laciniate. Cut or divided into segments; fringed.

Lactu'ca. Lettuce. From *lac*, milk; referring to the milky juice. Nat. Ord. *Compositæ*.

The native country of the Lettuce is unknown; and from what species the garden varieties originated is merely conjectural. According to Herodotus, it was in use 550 years before Christ; yet Pliny says the ancient Romans knew but one sort. In his time it was cultivated so as to be had at all seasons of the year, and even blanched to make it more tender. In the privy-purse expenses of Henry VIII., in 1530, is mention of a reward to the gardener of York Place for bringing "Lettuze" and Cherries to Hampton Court. Gerarde, in his Herbal, 1597, gives an account of eight sorts cultivated in his day. Parkinson, in 1629, says: "There are so many sorts, and so great diversitie of Lettice, that I doubt I shall scarce be beleeved of a great many. For I doe in this Chapter reckon up unto you eleaven or twelve differing sorts; some of little use, others of more, being more common and vulgar; and some that are of excellant use and service, which are more rare, and require more knowledge and care for the ordering of them, as also for their time of spending, as some in the spring, some in summer, others in autume, and some being whited for the winter. For all these sorts I shall not neede many descriptions, but only shew you which doe cabbage, and which are loose; which of them are great or small, white, greene, or red, and which of them bear white seeds, and which of them blacke." We cannot quote the whole chapter, but cannot omit one of the "Vertues of the Lettice," viz.: "They all cool a hot and fainting stomacke." Loudon says: "*L. sativa* is well known as furnishing, among its numerous varieties, the best vegetable of the salad kind grown in the open garden. It is questioned by some whether the greater number of what are set down as species in this genus, are anything more than variations of one type; and, at all events, it is thought *L. virosa* is the parent of our cultivated sorts." All writers agree that the *Cos Lettuce* comes from one of the Greek islands bearing that name. It is by far the most delicately flavored of the whole class, though not well suited for our hot summers. The best kinds at present writing for our climate are: For early use, the "*Curled Simpson*" and "*Black-seeded Simpson*;" and for summer use, the "*Deacon*," "*Salamander*," "*Yellow-seeded Butter*," and "*Henderson's New York*." Hundreds of acres of glass are devoted to the forcing of Lettuce in the United States. The variety used mostly for that purpose is known as "*Boston Market*."

Lacunose. Having numerous large deep excavations.

Lad's Love. *Artemisia Abrotanum.*

Lady Fern. *Asplenium Felix-fœmina.*

Lady's Bed-straw. *Galium verum.*

Lady's Bower. *Clematis Vitalba.*

Lady's Comb. *Scandix Pecten-Veneris.*

Lady's Cushion. *Armeria maritima.*

Lady's Ear-drops. The flowers of the common *Fuchsia.*

Lady's Fingers. See *Anthyllis.*

Lady's Glove. *Digitalis purpurea.*

Lady's Hair. *Briza media.*

Lady's Laces, or **Lady's Garters.** *Phalaris arundinacea variegata.*

Lady's Looking-glass. *Campanula speculum.*

Lady's Mantle. *Alchemilla vulgaris.*

Lady's Slipper. See *Cypripedium* and *Garden Balsam.*

Lady's Smock. *Cardamine pratensis.*

Lady's Thimble. *Campanula rotundifolia.*

Lady's Thistle, Our. *Carduus Marianus.*

Lady's Traces, or **Tresses.** See *Spiranthes.*

Lady Washington Geranium. A variety name for one of the large-flowered *Pelargoniums*, and for a long time in this country a common name for the whole of that class. It is to some extent still in use, though the variety bearing the name has long since been discarded; consequently it is improper to thus continue to use a specific name for a generic.

Læ'lia. Named after a Vestal virgin of that name, because of the variety of its flowers. Nat. Ord. *Orchidaceæ*.

"This is a lovely genus of plants, most of the species being compact in their growth, with evergreen foliage, resembling in many respects, the genus *Cattleya*, to which some of them are equal in the beauty of their flowers. They produce their flowers, which are large,

distinct in color, and very handsome, on spikes of varied length, from the top of their pseudo-bulbs. These plants merit a place in every collection, and will amply repay the cultivator for any care they may require; indeed, the *Lælias* are among our finest Orchids, whether for winter or summer flowering."—*B. S. Williams*. All the species are natives of Mexico and South America, and were first introduced in 1835.

Lævigate. Having the appearance of being polished, as many seeds.

Lævis. Free from asperities or hairs, or any sort of unevenness.

Lagena'ria. Bottle Gourd. From *legena*, a bottle; referring to the shape of the fruit of some species. Nat. Ord. *Cucurbitaceæ*.

L. vulgaris, the only species is an East Indian species of Gourd, sometimes grown on account of its curious shape. Like most of the order, the pulp is poisonous. The common name does not indicate the shape of all the varieties, some being pear-shaped, some nearly round, and others egg-shaped. They should be sown at the same time as Melons and Squashes, and should have a trellis or brush to run upon. Introduced in 1597.

Lagerstrœ'mia. In honor of *Magnus Lagérstræm* of Gottenburgh. Nat. Ord. *Lythraceæ*.

A genus of handsome, free-flowering shrubs from India. *L. Indica* is commonly known as Crape Myrtle, and is a favorite half-hardy shrub. It can be planted out in the border in spring, and will bloom profusely during midsummer. At the approach of winter take it up, put it in a tub or box, and keep it in the cool part of the green-house or in a dry cellar, giving but very little water. There are several varieties of this species, having purple, pink, and white flowers. The latter is rather a shy bloomer, and is of dwarfer habit. Propagated by cuttings.

Lage'tta. Lace Bark. Lagetto is the name of the species at Jamaica. Nat Ord. *Thymelaceæ*.

A genus of West Indian, tall-growing trees, interesting from the peculiar formation of the bark of some of the species. The inner bark of *L. lintearia* consists of numerous concentric layers of fibers which are interlaced in all directions, and thus presents a great degree of resemblance to lace, whence the common name of the tree.

Lagu'rus. Hare's-tail Grass. From *lagos*, a hare, and *oura*, a tail; on account of the resemblance of its head. Nat. Ord. *Graminaceæ*.

L. ovatus, the only species, is found in the Island of Guernsey, and some parts of Asia, and is one of the handsomest of cultivated annual grasses.

La'lage. Named after *Lalage*, a gay, witty dame, immortalized by Horace. Nat. Ord. *Leguminosæ*.

A small genus of ornamental shrubs, natives of the south-west coast of Australia. The flowers are either yellow or mixed orange, violet, or crimson, and are produced in axillary clusters. They require the green-house, and are propagated by cuttings. Syn. *Bossiæa*. Introduced in 1830.

Lama'rckia. Named after *J. B. Lamarck*, the great French naturalist. Nat. Ord. *Graminaceæ*.

L. Aurea, the only species, is a pretty, many stemmed, low, ornamental annual grass. It is generally included in collections of ornamental grasses. Native of southern Europe and north Africa. Syn. *Chrysurus*.

Lambe'rtia. Named in honor of *A. B. Lambert*, one of the most liberal botanists in Europe, and whose extensive herbarium was open to every man of science. Nat. Ord. *Proteaceæ*.

Very handsome green-house evergreen shrubs from tropical Australia. The flowers are mostly produced in terminal clusters, sometimes singly, the prevailing color being dark red, with occasionally an orange tint. Height of plant three to four feet. They are readily increased by cuttings, but must be grown with considerable care, the principal caution being against over-watering; any excess in that is fatal to them. Introduced in 1824.

Lambkill. See *Kalmia*.

Lamb's Lettuce or **Corn Salad.** See *Valerianella*.

Lamb's Toe. *Anthyllis vulneraria*.

Lamb's Tongue. *Plantago media*.

Lamium. From *laimos*, a throat; on account of the shape of the corolla. Nat. Ord. *Labiatæ*.

A genus of herbaceous plants of but little interest. *L. album* or Dead Nettle received its English name from the resemblance of its leaves to those of the true Nettle, from which, however, it may be distinguished by its square stem. *L. maculatum* is a pretty dwarf, free-growing border plant, its variety (*aureum*) with golden-colored foliage is useful either as a rock or border plant, or for spring bedding.

Lamproco'ccus. This genus is now included by Bentham and Hooker under *Æchmea*.

Lanate, Lanuginose. Long, dense, curled and matted hairs, resembling wool.

Lanceolate. Shaped like the head of a spear; narrow and tapering at each end.

Lance-wood. The light elastic wood of *Duguetia quitarensis*.

Lando'lphia. Named after *M. Landolphe*, an African explorer. A genus of scandent shrubs, natives of tropical Africa and Madagascar. Caoutchouc is obtained in large quantities from many of the species. *L. owariensis*, *L. florida*, and other species have been introduced to Kew, and distributed to various of the British colonies. The former bears a reddish-brown fruit about the size of an orange, with an agreeable, sweetish, acid pulp. Cuttings root readily in heat.

Lanta'na. Ancient name for Viburnum. Nat. Ord. *Verbenaceæ*.

An extensive genus of ornamental, free-flowering, tender shrubs, common from the West Indies to Brazil. The species are rapid growers, and most constant bloomers. They are readily increased by cuttings, and will grow freely in the garden, preferring a sunny situation. Many new varieties have been produced from seeds, comprising, red, golden, white, or various colored flowers, which are much used for bedding-out purposes and as specimen decorative plants. First introduced from the West Indies in 1692.

Lantern Flower. The genus *Abutilon*.

Lapage'ria. Named after *Josephine Lapagerie*, wife of Napoleon I. Nat. Ord. *Liliaceæ*.

L. rosea, and its white variety, are unquestionably the most beautiful green-house twining plants yet introduced. The stems are round, branching, and with proper treatment, will grow to almost any required length. The flowers are large, lily or bell-shaped, and produced on solitary, one-flowered peduncles. *L. rosea* has deep rose-colored flowers, spotted inside with white. Several seedling varieties with larger flowers and of a rich, brilliant crimson color, are in cultivation; a double variety has also been introduced, the character of which has not yet been established. They should be grown in a house with a low temperature, and given plenty of air, water, and root room; the latter is a necessity. They do tolerably well grown in tubs, but are seldom seen in perfection except when turned into the border, and grown in a soil largely composed of turfy peat, good turfy loam, and sand. They are increased either by layers or from seeds, the latter being preferable; plants from cuttings rarely succeed. They are natives of Chili, and were introduced in 1847.

Lapeyrou'sia. Named in honor of *J. F. G. de La Peyrouse*, the French navigator. Nat. Ord. *Iridaceæ*.

A small genus of showy flowering bulbs, blue, white, purple, or pink in color, in general habit resembling the Ixias, and requiring the same treatment. Closely allied to *Anomatheca*. Natives of the Cape of Good Hope; first introduced in 1825. Syn. "*Peyrousia.*"

Lapo'rtea. Named by Gaudichand, after his friend *M. Laporte*. A genus of *Urticaceæ*, consisting of herbs, shrubs, or trees, natives of North America and the warmer regions of the Old World. Some of the species, as *L. gigas*, are armed with very virulent stings, the effect of which remains for many days, or even months. *L. Canadensis* (Wood Nettle), a native species, has lately been imported into Germany as a new textile plant; it is perennial and capable of enduring the climate of central Germany, but further experiments are needed ere its commercial value can be determined.

La'ppa. *Arctium Lappa*, or *Burdock*.

Larch. See *Larix*.

Lardiza'bala. In honor of *M. Lardizabala y Uribe*, a Spanish naturalist. Nat. Ord. *Berberidaceæ*.

Half-hardy evergreen climbers, natives of Chili. *L. biternata*, the most beautiful of the species, has dark, glossy, evergreen foliage, and drooping spikes of deep, purple flowers. In Chili a very tough fibre is obtained from its stems and made into cordage; and its fruit, containing a sweet-tasted pulp, is sold in the markets. This species would make a splendid creeping plant for covering walls in the Southern States, but would not be hardy north of Virginia.

La'rix. Larch. From the Celtic, *lar*, fat; on account of the tree producing plenty of resin. Nat. Ord. *Coniferæ*.

Larix Americana, one of our native species, is a beautiful deciduous tree, growing to its greatest perfection in the more northern States and Canada, where it attains a height of from eighty to a hundred feet, with a diameter of from two to three feet. The wood of the American species is popularly known as *Hackmatack*, or *American Black Larch*, and is superior to any of the species of Pine or Spruce for ship-building, for which purpose it is largely employed in Maine and the British Provinces. The trees are small and of but little value south of Maine. Its southern limits are the mountains of Virginia. *L. occidentalis*, found in British Columbia, northern Washington Territory, the western slopes of the Rocky Mountains of Montana, very common, and perhaps reaching its greatest development in the region north of the Big Blackfoot river, and in the valley of the Flathead river, Montana, is the largest and most valuable timber tree of the Columbia basin. It is not so fine an ornamental tree as *L. Europæa*, which is also a valuable timber-tree, and worthy of a place on the lawn. There are a number of varieties.

Larkspur. A general name for the garden species of *Delphinium*.

La'rrea. In honor of *John Anthony de Larrea*, a Spanish promoter of the sciences. Nat. Ord. *Zygophyllaceæ*.

L. Mexicana, the Creosote plant, is a shrub growing from four to six feet high, very abundant in some parts of Mexico, forming a dense and almost impassable scrub, particularly on the borders of the Colorado desert, where its luxuriant growth puts a stop to the drifting sand. Its appearance is a sure indication of a sterile soil, as nothing will grow beneath it, and its strong Creosote odor is so repulsive that no animal will touch it. It is with great difficulty that it can be made to burn, and it is consequently useless for fuel.

Lasia'ndra. From *lasios*, woolly, and *aner*, an anther; alluding to the hairy stamens. Nat. Ord. *Melastomaceæ*.

A large genus of green-house evergreen shrubs, with handsome foliage, and producing large panicles of beautiful purple flowers. They are easily propagated from cuttings, and were introduced from Rio Janeiro in 1836. Syn. *Pleroma*.

Lasthe'nia. Derivation of name unknown. Nat. Ord. *Compositæ*.

A small genus of hardy annuals from California, the seeds of which should be sown in autumn or early spring. The flowers are pure golden yellow, making it a very pretty border plant. Introduced in 1834.

La'stræa. Derivation unexplained. Nat. Ord. *Polypodiaceæ*.

An extensive genus of polypodiaceous Ferns, formerly included in the genus *Aspidium*. Some of the newly-introduced species from Australia grow luxuriantly in the ordinary green-house. Like all of the order a moist atmosphere is favorable to their perfect development. This genus is now included by some botanists under *Nephrodium*.

Lata'nia. Bourbon Palm. *Latanier* is the name of the palm in the Isle of Bourbon. Nat. Ord. *Palmaceæ*.

A small genus of very handsome palms, with branching flower spikes, the male and female being produced on different plants. *L. Verschaffeltii* (Syn. *L. aurea*) has flabelliform roundish, deeply incised leaves of a deep glaucous-green color, and golden-colored midribs. The petiole is smooth, of an orange tint and from two to four feet long.

LAT

L. Commersonii, has deeply incised, gracefully recurved leaves, the segments margined with a reddish colored band, edged with fine teeth-like spines; the petioles are long and smooth, of a deep chocolate-red color. It is a very handsome and distinct species. They are propagated by seed, which grows freely if given a mild bottom heat. They can be kept in the green-house during winter, and require but little water. In the summer give them plenty of heat and water; their growth will be in proportion to the amount of each given. The species known in cultivation as *Latania Borbonica*, is now named *Livistona Chinensis*, which see.

Lateral. Fixed near or upon the side of anything.

Laterals. The sideshoots that emanate right and left of the leading branch or shoot.

Lathræ'a. Tooth Wort. From *lathraios*, hidden, on account of the species being found as if hidden under trees. Curious leafless, herbaceous plants, belonging to the *Orobanchaceæ*, natives of western Europe and Asia, with white, yellowish, or pinkish flowers in dense spikes. Parasitical on the roots of various trees.

La'thyrus. From *la*, to add to, and *thouros*, an irritant; to increase excitement; the supposed qualities of the seeds. Nat. Ord. *Leguminosæ*.

A large genus of very beautiful, free-flowering climbing annuals and perennials, found in the temperate regions of both hemispheres. *L. odoratus*, the Sweet Pea of our gardens, is a native of southern Sicily, and was first introduced into England in 1701. On account of its fragrance it is the most desirable of the species. There is now great diversity in the colors of the different varieties, some of late introduction being the best in cultivation; they include white, purple, black, scarlet, blue-edged, and striped sorts. The Sweet Pea delights in a heavy, stiff loam, and will not succeed in a light soil unless planted very deep, say five inches, and the earth well packed down around the plants. *L. sylvestris platyphyllus* (*L. latifolius*), or Everlasting Pea (of gardens), of which there are three varieties, producing purple, rose, and white flowers, are pretty generally distributed throughout Europe. They grow from six to eight feet high when properly trained upon a trellis; and if planted in a moist soil will prolong their season of flowering nearly the whole summer. They are extensively used in New York and other large cities as cut flowers. *L. Magellanicus*, a perennial species from Cape Horn, is remarkable for the beauty of its foliage, as well as for its showy blue flowers. The perennials are propagated by root division and from seed. Seedlings do not usually get strong enough to flower well before the third year; they will, however, produce some flowers the second year. There is one perennial species, *L. tuberosa*, occasionally met in Europe, having edible tubers, which, if baked or roasted, are said to be great delicacies. The flowers of this species are borne in clusters on long peduncles; they are of medium size, and of a rosy-pink color. There are several other species under cultivation.

Lattice Plant. See *Ouvirandra*.

LAV

Laura'ceæ. A natural order of trees, with exstipulate, usually alternate, dotted leaves. They are tropical, aromatic, and fragrant plants. *Cinnamomum Zeylanicum* yields Cinnamon Bark. *C. cassia* supplies Cassia Bark. *Camphora officinarum*, a native of China, Japan, and Cochin China, yields Camphor. *Persea gratissima* furnishes the fruit called Avocado Pear or Alligator Pear. *Sassafras officinale* is the American Sassafras Tree. *Laurus nobilis* is the Sweet Bay. There are about fifty genera and between 400 and 500 species. *Laurus*, *Cinnamomum*, *Camphora*, and *Sassafras* are examples of the order.

Laurel or **Cherry Laurel.** *Cerasus Laurocerasus*.
American. *Kalmia latifolia*.
Californian. *Oreodaphne Californica*.
Ground. *Epigæa repens*.
Magnolia. See *Magnolia glauca*.
Portugal. *Cerasus Lusitanica*.
Sheep's. *Kalmia angustifolia*.
Spurge. *Daphne Laureola*.
Victor's. See *Laurus nobilis*.

Lau'rus. Laurel. From the Celtic *laur*, green. Nat. Ord. *Lauraceæ*.

Under the common name of Laurel many different plants are met in fields and gardens, but the Sweet Bay, or Victor's Laurel, *L. nobilis* is the only one which is properly so called. It is a native of southern Europe, and is a beautiful evergreen shrub or tree. In some localities it grows to the height of fifty or sixty feet, always retaining its shrub-like character. Its leaves have an agreeable aromatic, slightly bitter taste; its flowers are yellowish and inconspicuous, and its fruits are succulent, and of the size of a small cherry. The leaves, because of their agreeable flavor, are used in cooking and in various confections. The dried figs that are imported into this country are usually packed with these leaves. This tree is not hardy enough to resist the winters north of the Carolinas. Propagated by layers, root cuttings, or by seeds.

Laurusti'nus. See *Viburnum tinus*.

Lava'ndula. Lavender. From *lavo*, to wash, in allusion to the use made of its distilled water. Nat. Ord. *Labiatæ*.

Mostly under-shrubs, natives of the south of Europe, but largely grown in England and France for the sake of their perfume, and for the oil, on which this property depends. The essential oil of Lavender is produced by distillation from the flowers, and is much prized for its agreeable odor. When dissolved in spirits of wine, and mixed with other purfumes, it forms the much appreciated Lavender Water. This oil is the essential element in the Sweet Spirits of Lavender of the druggists. *L. vera* is the species grown for these extracts, and is propagated by cuttings or from seed. All the hardy species are ornamental.

Lavate'ra. Named after the the two *Lavaters*, Swiss botanists. Nat. Ord. *Malvaceæ*.

An extensive genus of herbaceous perennials, biennials, and annuals, common throughout Europe and western Asia. They are mostly coarse-growing, bushy plants, of little merit. The annual species are rather showy, producing large purple flowers, suit-

able only for backgrounds to other plants. The seed need only be sown where wanted to grow.

Lavender. See *Lavandula.*
Cotton. See *Santolina.*

Lawn. Is the name given to the open grass space surrounding a dwelling. The preparation of the lawn should be preliminary to the laying out of flower-beds in grounds having pretensions to what is called Landscape Gardening. The formation of the lawn is too often hastily and imperfectly done; it is the foundation of all subsequent operations, and if badly done at first, the fault can never be remedied afterwards. The first thing to be done is to get the ground shaped to the desired grade, taking care in grading that when hills or rocks are removed, sufficient subsoil is also removed to be replaced with top soil; so that at least five inches of good soil will overlay the whole in all places. When the grading is finished, if the nature of the ground requires it, drains should be laid wherever necessary (see *Draining*); then the whole should be thoroughly plowed, a subsoil following in the wake of the common plow, until it is completely pulverized. A heavy harrow should then be applied until the surface is thoroughly fined down; all stones, roots, etc., should be removed, so that a smooth surface may be obtained. The lawn is now ready to be sown. When the seed is sown, a light harrow should again be applied, and after that a thorough rolling given, so that the surface is made as smooth and firm as possible. In the latitude of New York, the seed may be sown any time during the months of April and May, and will form a good lawn by August, if the preparation has been good. If sown in the hot months of June or July, a sprinkling of oats should be sown at the same time, so that the shade given by the oats will protect the young grass from the sun. Lawns are also sometimes sown during the early fall months (September being the best) with excellent results. The formula for seed for lawn grass now known in New York as Central Park Mixture, is as follows: Eight quarts Rhode Island Bent Grass; three quarts Creeping Bent Grass; ten quarts Red Top Grass; ten quarts Kentucky Blue Grass; one quart White Clover. For small plots, of course, digging, trenching, and raking must be done, instead of plowing, sub-soiling, and harrowing. Wherever the extent of the lawn does not exceed 2,500 square feet, and where sods can be obtained from a suitable pasture near at hand without much cost, the quickest way to make the lawn is to sod it; but before doing so, the ground should be rolled or beaten down, particularly if any portion of it has been filled in, so that there may be no "settling" to form hollows or inequalities. A convenient size of sod to lay down is twelve by eighteen inches, and of a thickness of two inches. In laying, see that the edges are neatly laid together, and the whole firmly beaten down with the back of a spade. If it is dry weather when the work is done, it may be necessary to thoroughly drench the newly-laid sod for a week or so after, every other evening.

To keep the lawn in proper condition, it should be mowed over once every week, if the weather is moist, and not less than once in two weeks, even in dry weather; for if the lawn has been properly made in the first place, and "top-dressed" with a good coat of well-rotted manure in fall, and the rough parts raked off in spring, the weather must be dry and hot indeed to prevent its growth.

On sloping banks it is often necessary to use sod, as the rains wash the soil off before the grass-seed has time to germinate. It is sometimes even necessary, in sodding very steep banks, to use pins eight or ten inches in length, to pin the sods to place, to prevent them from being washed down by excessive rains before the grass-roots have had time to fasten in the soil.

Lawns that have been worn out by neglect or other causes, or where it is not convenient or desirable to renew them by plowing up, will be greatly benefited by running a light harrow over them if the surface is large, or by a sharp steel rake for smaller areas. After stirring the surface by such means, judiciously, so as not to injure the roots too severely, lawn grass should be sown over the surface, using about half the quantity of seed required for new lawns, and over this for each acre, or in the same proportions for lesser areas, sow 500 pounds of some good "lawn enricher;" again harrow or rake, and roll down firmly.

WEEDS in lawns, such as thistles, dandelions, dock-roots, etc., can only be removed by cutting them out with a knife. Thistle and dock-roots should be removed as far as possible; but as to others, there is no necessity for cutting the whole root out. If cut *below* the crown, the root will not start again.

ANTS on lawns are a pest that we are almost powerless to cope with. Nothing seems to poison them, as either their instinct teaches them to avoid the ordinary insect poisons, or their constitutions are proof against them. Everything we have tried has failed, except Pyrethrum or Persian insect powder. This applied by a bellows quickly suffocates them; but every insect needs to be struck by it, or it is useless, as it only kills them by suffocation. They can also be captured by placing fresh bones or molasses in plates around their haunts; they attack these before anything else. By persistently thus catching and destroying them two or three times a day, they may be permanently got rid of.

Lawso'nia. Henna Plant. Named after *Dr. Isaac Lawson,* a botanical traveler. Nat. Ord. *Lythraceæ.*

L. Alba, the only species, the celebrated Henna of the East, and is a dwarf shrub, eight to ten feet high, bearing smooth, oval, lance-shaped, entire leaves, and panicles of small, white, sweet-smelling flowers, which are used by Buddhists as offerings to their deities. This shrub is grown, throughout India, Persia, Egypt, and the north of Africa, and the use of the powdered leaves as a cosmetic is very general in all these countries, the practice having descended from very remote ages, as is proved by the evidence of Egyptian Mummies, the parts dyed being usually the finger and toe nails, the tips of the fingers, the palms of the hands, and the soles of the feet, to all of which it imparts a reddish-orange color, which is considered by the Oriental fair sex, greatly to enhance their beauty.

In the West Indies where it is naturalized, it goes by the name of Jamaica Mignonette.

Laxma'nnia. Named after *E. Laxmann*, a Siberian traveler. Nat. Ord. *Liliaceæ*.

A small genus of low-growing, green-house herbaceous plants, from New Holland. The flowers are borne in terminal heads on slender scapes, six inches high, and are either white or purple. They are increased by division of the root, and were introduced in 1824.

Layering. See Propagation by Layering.

La'yia. Named in honor of *Thomas Lay*, naturalist in Beechey's Voyage. A genus of *Compositæ*, consisting of seven or eight annual or biennial herbs, natives of California, and Oregon, usually pubescent or hirsute, often glandular, with alternate leaves, and white or yellow flowers; increased by seeds. Syn. *Callichroa*, *Calliglossa*, and *Oxyura*.

Lead-colored. Slate colored, with a slight metallic lustre.

Lead Plant. See *Amorpha canescens*.

Leadwort. See *Plumbago*.

Leaf. An appendage to the stem, considered as an expansion to the bark, composed of cellular tissue, and generally with fibres of vascular tissue intermixed.

Leaf Cup. The genus *Polymnia*.

Leather Flower. The common name of *Clematis Viorna*.

Leather Leaf. *Cassandra calyculata*.

Leatherwood. See *Dirca*.

Le'chea. A genus of *Cistaceæ* differing from *Helianthemum* in some slight particulars. There are four or five species, all natives of the United States, slender, much branched perennial herbs with numerous small greenish or purple flowers. Common in dry sterile soils.

Le'cythis. From *lecythos* an oil-jar; in allusion to the shape of the seed-vessels. A genus of *Myrtaceæ*, almost exclusively confined to Venezuela, Guiana, and Brazil. Under the name of Sapucai Nuts the seeds of *L. Zabucajo* are sold as a substitute for the closely allied Brazil nuts, to which they are far superior. *L. Ollaria* produces large fruits commonly known as Monkey Pots, but the seeds are not so palatable as the former, leaving a bitter flavor in the mouth.

Ledenbe'rgia. A commemorative name. Nat. Ord. *Phytolaccaceæ*.

L. rosea-ænea the only species is a very ornamental-leaved warm green-house shrub, with large, thick obovate-lanceolate leaves, dark shining coppery-green on the upper surface and bright rosy-violet color beneath. The stems and branches are reddish-purple. It was introduced from Central America in 1869, and is readily increased by cuttings in heat.

Le'dum. Labrador Tea. From *ledon*, the Greek name of Cistus, which this genus resembles. Nat. Ord. *Ericaceæ*.

A small genus of hardy, evergreen, white-flowering shrubs, natives of British America. See *Labrador Tea*.

Lee'a. Commemorative of *James Lee*, a London nurseryman, who did a good deal to popularize the Linnæan system. A genus of *Vitaceæ*,

consisting of rough shrubby plants (rarely trees), found in tropical Asia, Africa, and the Mauritius. Plants of little interest except *L. amabilis* which is a very handsome foliaged plant. Introduced from Borneo in 1880.

Leek. *Allium Porrum*.

Legume. A name given to the seed-vessel of the Pea family, opening the two valves, and having the seeds attached to the ventral suture.

Legumino'sæ. A natural order of herbs, shrubs, or trees, with alternate, usually compound, exstipulate leaves. The plants occur in all parts of the world, but are abundant in tropical countries. The order is a large one, and has been divided into three sub-orders, viz: *Papilionaceæ*, *Cæsalpineæ*, and *Mimoseæ*. They supply food, timber, fibre, gums, dyes, and various economical substances. Some are poisonous. Among the useful plants may be mentioned Beans, Peas, Lentils, Pulse of various kinds, Lupins, Clover, Lucerne, Sainfoin, Tragacanth, Indigo, and others. There are about 550 genera and 7,000 species. *Phaseolus*, *Vicia*, *Pisum*, *Lotus*, *Cassia*, and *Acacia* are examples of the order.

Leiophy'llum. Sand Myrtle. From *leios*, smooth, and *phyllon*, a leaf; referring to the leaves being quite smooth. Nat. Ord. *Ericaceæ*.

L. buxifolium, the only species, is a small erect bushy evergreen shrub, its pretty white flowers having pink tips. Natives of New Jersey, and the mountains of Virginia. Syn. *Ledum buxifolium*.

Lemna. Duck-weed. An old Greek name of uncertain meaning. Nat. Ord. *Lemnaceæ*.

A genus of small floating herbs distributed over Europe, Northern Asia, and North America, but very rare in the tropics. These plants are without distinct stems or real leaves, "but consist of small leaf-like fronds, either separate, or cohering two or three together by their edges, emitting in most species, one or more fibres from their under surface into the water, and multiplying by similar fronds growing out of their edges. Flowers very rare, appearing from a fissure in the edge, or on the upper surface of the frond" (Bentham). The pretty little *Nertera depressa* with its red fruits is often called Australian or Fruiting Duck-weed, showing plainly the absurdity and inutility of English names only, to distinguish plants.

Lemnaceæ. A natural order of very small herbaceous plants, found floating on the surface of stagnant waters especially in temperate regions. The two genera, *Lemna* and *Wolffia*, are the smallest known Phanerogamous plants, and are closely allied to *Aroideæ*, and *Naidaceæ*.

Lemon. See *Citrus*.

Lemon Grass. A popular name of one of the species of *Andropogon*.

Lemo'nia. Named in honor of *Sir Charles Lemon*. Nat. Ord. *Rutaceæ*.

L. spectabilis, the only species, is a green-house evergreen shrub from Cuba, producing axillary clusters of beautiful rose-colored flowers in September. During summer they require plenty of heat and water, and in winter to be kept dormant, with only water enough

LAYIA ELEGANS.

LATHYRUS ODORATUS (SWEET PEAS).

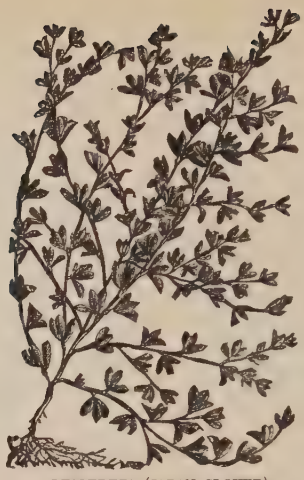
LEPTOSIPHON ROSEUS.

LAGURUS.

LATANIA BORBONICA (LIVISTONA CHINENSIS).

LAPAGERIA.

LIMNANTHES.



LESPEDEZA (JAPAN CLOVER).

LIATRIS.

LEONOTIS (LION'S TAIL).

LEPTOSIPHON HYBRIDUS.

LEUCOJUM VERNUM.

LEONTOPODIUM (EDELWEISS).

to keep them from shriveling. Propagated by cuttings. Syn. *Ravenia.*

Lemon Verbena. *Aloysia citriodora.*

Lens esculenta. Syn. for *Ervum lens* (*Lentil*).

Lentibularia'ceæ. A natural order containing four genera of principally aquatic or marsh herbs, most abundant in the tropics. The most familiar examples are the common Bladder-wort (*Utricularia*) and *Pinguicula.*

Lenticular. Shaped like a lens; resembling a double convex lens.

Lentil. See *Ervum Lens.*

Lent Lily. A common name for *Narcissus Pseudo-Narcissus.*

Lent Rose. A name given to *Helleborus orientalis, H. Olympicus,* and other species.

Leono'tis. Lion's Ear. From *leon,* a lion, and *ous,* an ear; some resemblance in the flower. Nat. Ord. *Labiatæ.*

A small genus of annuals and green-house evergreen shrubs. Of the latter *L. leonurus,* the Lion's Tail, is a magnificent species from the Cape of Good Hope, producing brilliant scarlet flowers. It requires a rough, sandy loam, with plenty of air, and during the summer a liberal supply of water, when it will not fail to grow and flower finely. It is propagated by cuttings. The other species are scarcely worth growing. *L. cardiaca* is known in domestic medicine as Motherwort.

Leo'ntice. From *leon, leontos,* a lion; alluding to the fancied resemblance in the leaves to the print of a lion's foot. Nat. Ord. *Berberidaceæ.*

A small genus of herbs with tuberous rhizomes, natives of southern Europe and central Asia. *L. Altaica,* the best-known species, is a dwarf half-hardy plant, producing terminal deflected racemes of yellow flowers early in May. It may be increased by offsets or seeds.

Leo'ntodon. Hawk-bit. From *leon,* a lion, and *odons,* a tooth; referring to the tooth-like margins of the leaves. Nat. Ord. *Compositæ.*

A genus comprising about forty species of hardy herbaceous plants, very generally distributed in the old world, only one being native of America. None of the species are of any horticultural value.

Leontopo'dium. Edelweiss. Lion's Foot. From *leon,* a lion, and *pous,* a foot; resemblance of the flower-heads. Nat. Ord. *Compositæ.*

L. alpinum, the only species under cultivation, was formerly included in the genus *Gnaphalium.* This singular plant is a native of the Swiss Alps, where it is known by the popular title *Edelweiss.* The flower-heads are flat, topped by a wide-spreading, woolly-leaved foliaceous involucre. The appearance not inaptly resembles the soft-cushioned foot of the lion, hence the generic name. It succeeds best on rock-work, or in exposed spots in moist, sandy soil, and is increased by seeds or by careful division. Syns. *Gnaphalium Leontopodium* and *L. Helveticum.*

Leopard's Bane. See *Doronicum.*

Leopard Wood. See *Brosimum.*

Leopoldi'nia. Named after the late Empress of Brazil. Nat. Ord. *Palmaceæ.*

A small genus of Brazilian Palms, comprising three or four species, existing in considerable numbers on the Amazon and Rio Negro. The trees are of medium size, bearing terminal, smooth, pinnate leaves, and having the upper part of their stems covered with a copious network of fibres. *L. Piassaba* is one of the Palms which yield the Piassaba or Piacaba fibre, now so extensively employed by brush-makers as a substitute for bristles, and also for making the stout street brooms used in all large cities. Two distinct varieties of this fibre are recognized in commerce, one being a coarse kind obtained from *Attalea funifera* and imported from Bahia; and the other a finer kind brought from Para, the produce of the *Leopoldinia,* which is found growing in great abundance on the extensive plains between the Rio Negro and Orinoco rivers, forming entire forests. It attains a height of from fifteen to forty feet, and the fibre, or beard, as it is usually called, which is the envelope of the young leaves, hangs down all round, and completely covers the trunk quite to the ground, except in very tall trees, the lower part of whose trunk is generally bare. The brushes made from this fibre are known in trade as Tampico, and for many purposes are considered superior to those made from bristles.

Lepa'nthes. From *lepos,* bark, or *lepis,* scale, and *anthos,* a flower; the plants of this genus have very small flowers, and grow upon the bark of trees. Nat. Ord. *Orchidaceæ.*

A genus of the dwarfest of Orchids, with the habit of, and nearly related to. *Pleurothallus.* They can only be grown under a bell-glass, among damp moss, in a cool part of the house. They are natives of Mexico and the West Indies, and are propagated by division. Introduced in 1834.

Lepa'nthus. A synonym of *Heteranthera.*

Lepi'dium. Cress or Peppergrass. From *lepis,* a scale; in allusion to the shape of the pods, which appear like little scales. Nat. Ord. *Cruciferæ.*

A very extensive genus of hardy annuals and perennials, found distributed throughout the temperate regions of the earth. The only species of interest are *L. sativum,* the common garden Peppergrass, whose nativity is attributed to Persia: and *L. Piscidium,* found in the Society and Sandwich Islands. This species, in common with many other plants, possesses properties that intoxicate fish, and the natives use it for that purpose. When thrown into the water it is eagerly eaten by the fish, which are, soon after eating it, rendered insensible, and float helplessly upon the water, and are easily taken. There are several native and naturalized species common in this country, all of them weeds.

Lepta'ndra. Included under *Veronica.*

Leptochlo'a. Slender Grass. From *leptos,* slender, and *chloa,* grass; in allusion to the slender habit of the grass. Nat. Ord. *Gramineæ.*

A small genus of slender grasses inhabiting North and South America. *L. gracilis* is a graceful grass with long plume-like panicles. None of the species are considered valuable for agricultural purposes.

Leptosi'phon. From *leptos,* and *siphon,* a tube; alluding to the tube of the flower. Nat. Ord. *Polemoniaceæ.*

LEP

Handsome dwarf-growing Californian annuals. Some of the species make charming bedding plants. When planted in masses they form an entire sheet of pure white or lilac flowers, not more than eight inches from the surface of the soil. They succeed well in the open border, and by successive sowings may be had in flower the entire summer and autumn. They are also well adapted for growing in pots to bloom in winter. This genus is closely allied to *Gilia*, under which it is placed by some authors.

Leptospe'rmum. From *leptos*, slender, and *sperma*, a seed; seeds slender. A large genus of shrubs or small trees belonging to the *Myrtaceæ*, and nearly all confined to Australia and Tasmania. The leaves are alternate, small, leathery, and full of dots, or cells containing oil; their white flowers are borne on short stalks, on the sides of the young branches, either solitary or in little clusters. *L. lanigerum*, a native of Tasmania and south-eastern Australia, is commonly called Tea tree, on account of its leaves having been used by the early settlers in these countries, as a substitute for tea. Propagated by cuttings of the young shoots.

Lepto'syne. From *leptosin*, slender; a name applicable to the original species. Nat. Ord. *Compositæ*.

A genus of annual, or perennial, herbaceous, or suffruticose plants, with showy pedunculate heads the ray and disk being both bright-yellow and pinnately divided or dissected leaves. They have the habit of *Coreopsis*, which they represent on the western side of North America. *L. Maritima*, an autumn blooming perennial, is cultivated under the name of "Mid-Winter Sunflower."

Lepto'tes. From *leptos*, slender; referring to the leaves. Nat. Ord. *Orchidaceæ*.

A small genus of Brazilian Orchids. The two species known, are pretty little epiphytes, producing small, rush-like leaves and lovely white flowers, having a blotch of bright crimson on the lip. They are of easy culture, growing in the green-house, either on cork or in baskets of moss, and requiring liberal watering during the growing season. They are propagated by division; introduced in 1831.

Leptu'rus. A small genus of grasses but rarely met; it is occasionally found inhabiting marshy places on the sea-coast, where it furnishes considerable pasture for cattle.

Leschenau'ltia. Named after *M. Leschenault*, a French botanist. Nat. Ord. *Goodeniaceæ*.

A small genus of very ornamental heath-like shrubs, with rich blue or scarlet flowers, natives of Australia. They are among the most beautiful and effective green-house hard-wooded plants, and require the most careful attention at all seasons, particularly in regard to watering. *L. biloba major* is perhaps the finest blue hard-wooded shrub in cultivation, and *L. formosa* with scarlet flowers, is an exceedingly handsome species. They are propagated by cuttings of the moderately firm young shoots in a little heat.

Lespede'za. Named in honor of *M. Lespedez*, once Governor of Florida, and a great patron of botany. Nat. Ord. *Leguminosæ*.

LEU

A genus of low-growing, pea-flowering shrubs, annuals and herbaceous perennials, common from South Carolina to Mississippi. Some of the kinds are showy when in flower. *L. bicolor*, introduced from Japan under the name of *Desmodium penduliflorum*, is a hardy deciduous shrub, blooming in the autumn, and producing long, pendulous, branched panicles of rich rosy-purple colored flowers. If pruned close down to the ground every spring it forms a neat, graceful bush, two to three feet high, covered in autumn with blossom; a splendid addition to any collection of herbaceous plants. The species of most value is *L. striata*, or Japan Clover, which first appeared in 1849, near Charleston, S. C. The seeds are supposed to have been brought from Japan, or China, in some tea boxes. It rapidly spread into Georgia, and in 1870 appeared in Tennessee, and now spreads from the Atlantic coast to the Mississippi River. It is a low perennial plant, with a spreading habit, much like that of white clover. It flourishes on the poorest soils, preventing washing by rains, furnishing not only good grazing, but fertilizing the soil by the decay of its stubble as clover does. For sheep pasture, south of Virginia it is scarcely excelled by any other forage plant.

Lettuce. See *Lactuca*.

Leucade'ndron. From *leukos*, white, and *dendron*, a tree; in allusion to the white leaves. Nat. Ord. *Proteaceæ*.

An extensive genus of green-house evergreen shrubs from the Cape of Good Hope. They are cultivated for their silvery foliage, and their large terminal clusters of yellow flowers, which are produced in June and July. They all grow freely in a cool green-house, if care be observed not to over-water in winter; in fact, they are at all times impatient of water. They are readily increased by cuttings or ripened wood. *L. argenteum* is the Witte-broom, or Silver Tree, of the Cape colonists. It is a very handsome tree, too rarely seen in cultivation. The beautiful silvery-white dried leaves are imported, and largely used in the manufacture of wreaths, etc.

Leuca'nthemum. Ox-eye Daisy. From *leukos*, white, and *anthos*, a flower; white flowers, Nat. Ord. *Compositæ*.

This pernicious weed, *L. vulgare*, formerly included in the genus *Chrysanthemum* (*C. leucanthemum*), is a native of Great Britain, but has become thoroughly naturalized in many parts of the United States. It is a perennial, and increases rapidly from seed, or from the roots. *L. alpinum* is rather a quaint, pretty, very dwarf plant, with white, daisy-like flowers, and well deserves cultivation on rock-work in poor, gravelly soil. It is sometimes known as *Chrysanthemum articum* and *Pyrethrum alpinum*.

Leucoco'ryne. From *leukor*, white, and *koryne*, a club; because of the white sterile anthers. Nat. Ord. *Liliaceæ*.

Half-hardy bulbous plants, pretty, and deserving attention. They may be cultivated either in pots or in the open ground, if they are taken up and preserved in sand through the winter. The flowers are large for the size of the plant, and are either white or lilac. They are increased by offsets, and when

planted in the borders the bulbs should be set rather closely together to insure a display. Introduced from Chili in 1851.

Leuchtenbe'rgia. Named after *Prince Leuchtenberg.* Nat. Ord. *Cactaceæ.*

L. principis, the only species, has glaucous-green, succulent, triangular leaves, truncated at the apex, and there bearing six or seven long, chaffy, almost horny scales, of which the center one is almost as long as the mamillæ, and the others form a whorl round the center. The stem is about as thick as a man's arm, hard and woody, and the flowers are a rich, clear yellow, large, usually solitary, and produced at the top of the plant, among the younger mamillæ. It was introduced from Mexico in 1847, and requires the same treatment as *Mamillaria.*

Leucoca'rpus. From *leucos*, white, and *Karpos*, a fruit; alluding to the color of the berries. Nat. Ord. *Scrophulariaceæ.*

L. alatus, the only species, a native of Mexico, is a tall, puberulous or glabrous green-house plant, with yellow bi-abiate flowers and large opposite-spreading leaves. It grows from two to two and a half feet high, and is very ornamental when laden with its white fruits. Syn. *Mimulus perfoliatus.*

Le'ucojum. Snowflake. From *leukos*, white, and *ion*, a violet; in reference to the color of the flower, whence the English name Snowflake. Nat. Ord. *Amaryllidaceæ.*

Hardy bulbs, growing to the height of twelve and eighteen inches, and producing spikes of pretty white flowers like the Snowdrop. They increase by offsets from the bulbs. *L. vernum*, Spring Snowflake, one of our best early flowering bulbs, is a native of Germany and Switzerland, where it is found wild in the woods and other shady places. It was introduced in 1596; is dedicated to St. Agnes, the patron saint of young virgins, from its loveliness and purity, and hence is called St. Agnes's Flower. In Parkinson's time it was also known by the name of the Great Early Bulbous Violet. It is said to have become naturalized in the neighborhood of Bridgeport, Dorsetshire, England. These very elegant and delightfully fragrant flowers greatly resemble the Snowdrop, but they are much larger, and are about a month later. There is a yellowish green spot on each petal near the point. They are among the most desirable of early flowering bulbs, and are suitable for rock-work or borders. A sheltered situation should be chosen, and the soil should be well-drained. Syn. *Erinosma.*

Leucophy'ta Brownii. A synonym for *Calocephalus Brownii*, which see.

Leucopo'gon. From *leukos*, white, and *pogon*, a beard; referring to the hairs on the flowers. Nat. Ord. *Epacridaceæ.*

An extensive genus of evergreen shrubs, with handsome white flowers, produced in terminal or axillary spikes. The species are widely scattered over Australia, Tasmania, and New Zealand. But few of the species are under cultivation.

Leucospe'rmum. From *leucos*, white, and *sperma*, a seed; in allusion to the downy seeds. A genus of *Proteaceæ*, consisting of evergreen shrubs, or small trees, natives of south Africa. The flowers are solitary under each bract, sessile, and capitate, and the leaves are sessile and coriaceous, generally covered with silky hairs. Several species are in cultivation.

Leucoste'gia. A genus of Ferns now incorporated with *Davallia.*

Leucotho'ë. The name of a sea-goddess in the Greek Mythology. Nat. Ord. *Ericaceæ.*

A genus of handsome hardy evergreen shrubs, natives of North America and Japan. The flowers are white, and are disposed in terminal and axillary racemes. They are among the most desirable of hardy Ericaceous shrubs, and are propagated by seeds, layers, or divisions of established plants early in spring. *L. Davisiæ* is a handsome evergreen shrub, a native of California, where it grows from three to five feet high. It has rather small deep green foliage, and bears at the tops of each branch, clusters of small white blossoms, which being abundant, are very effective.

Levi'sticum. From *levo*, to assuage; the plant is said to relieve flatulency. Nat. Ord. *Umbelliferæ.*

L. officinale, the only species in cultivation, is a hardy herbaceous perennial, with yellow flowers and ternately-decompound leaves. It is seldom seen except in botanic gardens. A variety with variegated leaves has been recently introduced.

Lewi'sia. Bitter Root. Named after *Captain M. Lewis*, the American traveler and companion of Clark. Nat. Ord. *Portulacaceæ.*

L. rediviva, the only species, is a succulent perennial, with a fleshy, tapering root. Its leaves are quite succulent, and from their centre arises a strong stalk bearing a solitary rose-colored flower, surrounded by an involucre of five to seven scales. As soon as the flower appears the leaves begin to wither and dry up, usually lasting only a few days, the entire period of the plant's existence above ground not exceeding six weeks. This exceedingly curious plant is a native of the upper Oregon Territory, and its roots, which are largely collected by the Indians, afford a wholesome, though bitter-tasted food, being composed almost entirely of starch. The specific name, *rediviva*, was given to the plant in consequence of the growth of some dried and apparently dead roots, taken from an herbarium specimen.

Leyceste'ria. Named after *William Leycester*, of the Indian Civil Service. Nat. Ord. *Caprifoliaceæ.*

L. formosa, the only species, is a very handsome hardy or half-hardy deciduous shrub, of a rather rambling habit. It is a distinct and interesting plant, bearing its purplish-tinged white flowers in fascicles disposed in whorls of fives and sixes, the whole forming short, leafy, drooping racemes, which terminate the branches and branchlets. It is a native of the temperate Himalayas, whence it was introduced in 1824. It is propagated by cuttings of the young shoots in spring or by seeds.

Lho'tzkya. Named after *Dr. John Lhotzky*, a Viennese botanist who traveled in Australia. Nat. Ord. *Myrtaceæ.*

A genus of evergreen, Heath-like shrubs, natives of Australia. *G. acutifolia* (white) and

G. violacea (purple), the species best known to cultivation, are of easy management, and are propagated by cuttings made of the young shoots, when the base is hardened a little.

Lia'tris. Blazing Star. Button Snake Root. Derivation of the name unknown. Nat. Ord. *Compositæ.*

This genus consists of some twenty species, all hardy herbaceous perennials, common from New York to Kansas and southward. Some of the species are very ornamental border plants. They all produce long spikes of purple flowers from August until October, *L. pycnostachya* (Kansas Gay Feather), one of the finest of the species, has rosy purple flowers, on a spike three to four feet high. They begin to flower at the top of the spike, and continue to open downward, which is characteristic of the species. They are increased by seed, will flower the second year, and will grow anywhere and bloom well; the size and length of the spike will, however, be in proportion to the richness of the soil.

Liber. The inner lining of the bark Exogens, where alone its woody matter resides.

Libe'rtia. Named after *Mademoiselle M. A. Liebert de Malmedy*, a Belgian lady and botanist. Nat. Ord. *Iridaceæ.*

A small genus of half-hardy bulbs, natives of Australia, Tasmania, New Zealand, and Chili. They are of dwarf habit, with delicate white flowers, which are produced in umbels on a scape one and a half feet high. *L. formosa* produces spikes of flowers of snowy whiteness more like those of some delicate Orchid than of an out-door plant. *L. ixioides* and *L. Magellanica* are also very attractive when in flower. They are increased by offsets; introduced in 1822.

Liboce'drus. From *libanos*, incense, and *cedrus*, the cedar; the wood being fragrant and resembling the cedar. Nat. Ord. *Coniferæ.*

This genus consists of handsome evergreen trees, natives of Chili and New Zealand. They are nearly related to the Arbor-Vitæ, differing only the form of their cones. They are fine timber trees, growing to an immense size. Spars eighty or ninety feet long, are obtainable from *L. Chilensis*, and a single tree often yields as many as 1,500 boards. Its grain, too, is so straight and equal that it can be split into shingles, which look as though they had been dressed with a plane. These trees are not hardy in the Northern States.

Libo'nia. Named after *M. Libon*, a traveler in Brazil. Nat. Ord. *Acanthaceæ.*

A genus of handsome flowering plants from Brazil. *L. floribunda*, the only species yet known, is a small suffruticose plant, with elliptic oblong leaves, and very abundant tubular, yellow-tipped scarlet flowers, one or two from each leaf axil. The calyx is five cleft; the corolla tubular, with an erect bilabiate limb; two stamens affixed to the middle of the tube, with two-celled cordate-ovate anthers, one cell inserted higher than the other; disk annulate; style filiform, with a punctate stigma. The flowers are drooping, very abundant, and exceedingly ornamental. The leaves are apt to drop if the plant is allowed to suffer for water. *L. Penrhosiensis*, a seedling from the above, obtained

by crossing it with *Sericographis* (*Jacobinia*) *Ghiesbrechtiana*, is in many respects a decided improvement. The plant is dwarfer and of denser growth; the foliage is darker, larger, and more persistent; the flowers are even more abundant, there being from four to six at the axils instead of two, with more red and less yellow; and they make their appearance earlier. These plants should be grown in the green-house, where they will flower from November till Spring. They are also excellent sitting-room plants, and worthy of a place in any collection They grow best in a moderately rich loam, and are easily increased by cuttings; introduced in 1864. This genus is now included by Bentham and Hooker under *Jacobinia*, but the plants are best known by their former names.

Lichens. Lichens, as they are in form among the simplest of plants, so they may be called the pioneers of the vegetable kingdom. They are in general parasitical plants, living upon the bark of trees, or on the moist ground, or even upon the bare rocks. The sporules of the lichen are furnished with a gummy and adhesive fluid, and being scattered about by the winds they fall upon bare rocks, and to these attach themselves. Without soil, and simply from the moisture and from the air, they vegetate and form a small central lichen; others grow in circles around, till, in process of time, the whole surface of the bare rock becomes covered with a hoary coat. These lichens periodically decay, and mouldering to the earth form with the particles of abraided rock, a soil which is fitted for the reception of other plants further advanced in the scale or organization. Lichens are found at the extreme points of vegetation, on the summits of high mountains, and near the poles, where all other vegetable bodies disappear. In the Arctic regions, the hunters prepare an important article of food from one of the species that is there found in great abundance where there is scarcely a particle of soil, and where the snow rarely disappears.

The Iceland Moss.—*Cetraria islandica* is used as an edible substance by the Icelanders, who rarely obtain corn bread, and whose limited stock of substitutes obliges them to have recourse to every species of vegetable production which is permitted by their inclement climate to spring forth. The plant is collected by the inhabitants of this northern region; and after being washed, is cut into pieces, or it is dried by the fire or in the sun, then put into a bag which is well beaten. It is ultimately worked into a powder by being trampled on, and in this state is used as food. This lichen contains a nutritious matter called lichen-starch, along with a bitter principle. When boiled and macerated in water it forms, a nutritious and light jelly, which, with the addition of sugar and milk, has been used as a dietetic medicine in cases of decline, and was fancied at one time as a cure for consumption.

The Reindeer Moss.—*Cladonia rangiferina* grows in great abundance in the north of Europe, especially in Lapland, where it constitutes almost the sole winter food of the reindeer, that useful animal, without which the natives of that barren region could not exist. Linnæus assures us that this lichen

grows so luxuriantly in Lapland, as to be found sometimes a foot in height.

Rocella tinctoria, from which Litmus is obtained, furnishes an excellent dye. *Lecanora esculenta* is frequently met with in immense quantities in the most arid, desert regions of Asia and north Africa. It occurs in rounded masses about the size of a filbert, and is largely used as food. It possesses too, a peculiar interest, on account of its being supposed, by some commentators, to be the "manna" which fed the children of Israel during their wanderings in the wilderness.

Licua'la. The name of the species in the Macassar language. Nat. Ord. *Palmaceæ*.

A small genus of very elegant palms, allied to *Corypha*, natives of the East Indies, New Guinea, and northern Australia. *L. grandis* (Syn. *Pritchardia grandis*) has fan-shaped, deep, bright green leaves, three feet in diameter, borne on long slender petioles two to three feet long. It was discovered in one of the South Sea Islands and takes rank among the most distinct and attractive Palms ever introduced. *L. acutifida*, has a slender stem, bearing a small head of beautiful, much-parted, fan-like leaves, of an intense green. As an exhibition plant or ornament for the green-house or conservatory, it is highly to be recommended, either when young or in a more mature state. The stems of this plant grow from five to eight feet high, and form the handsome walking canes imported into England under the name of *Penang Lawyers*.

Liebi'gia. Named after *Liebig*, a celebrated German chemist. Nat. Ord. *Gesneraceæ*.

A genus of hot-house evergreen plants, allied to *Chirita*, and requiring the same treatment. They are natives of the East Indies.

Lie'tzia. Named after *A. Lietze*, a nurseryman at Rio Janeiro. Nat. Ord. *Gesneraceæ*.

L. Brazilensis, the only described species, is a stove-house perennial with a tuberous rhizome. The flowers are green, spotted with brown, and are remarkable for their curious form as well as color. It was introduced from Brazil in 1880, and is propagated by seeds, tubers, or cuttings.

Ligneous. Having the texture of wood; of or belonging to wood.

Lignum. The wood; that central part of a stem which lies beneath the bark, or its equivalent, the cortical integument.

Lignum Vitæ. See *Guaiacum*.

Ligula'ria. From *ligula*, a strap; referring to the florets. Nat. Ord. *Compositæ*.

A small genus of hardy and half-hardy herbaceous perennials, some of which are of an ornamental character, and are favorite garden plants. They abound in the mountainous regions of Asia, and have been more generally known as species of *Cineraria* and *Senecio*. *L. Kæmpferi aureo-maculata*, a native of China, and popularly known as *Farfugium grande*, is a low-growing-broad-leaved plant, remarkable for its shiny, dark-green foliage, which is irregularly blotched with bright yellow, or sometimes with white and rose. It is easily grown, and is a very decorative plant for the border. It requires the protection of the house during winter, and is propagated by division in spring or autumn.

Ligulate. Strap-shaped; narrow, moderately long, with the two margins parallel.

Ligu'sticum. Named for the country *Liguria*, where the officinal Lovage, *L. Levisticum*, abounds. Nat. Ord. *Umbelliferæ*.

A genus of about twenty species of glabrous perennial herbs, dispersed over the northern hemisphere. None of the species is worth cultivating.

Ligustri'na Amurensis. A synonym of *Syringa Amurensis*.

Ligu'strum. Privet. From *ligare*, to tie; referring to the use made of the flexible shoots. Nat. Ord. *Oleaceæ*.

A genus of hardy, ornamental shrubs, or small trees, natives of tropical Asia, Japan, and Northern Africa. The species are of easy culture in almost any soil or situation, and are especially valuable in the neighborhood of large towns, where a smoky atmosphere prevails; in the shade, or under the drip of trees. *L. vulgare*, the common Privet, is extensively used for hedges in ornamental gardens, owing to its bearing clipping without injury. *L. ovalifolium*, a native of Japan, commonly known as the California Privet, is one of the hardiest and most floriferous of the genus, and is remarkable for the beauty and persistence of its foliage, which is of a dark waxy-green color, and considerably larger than the common Privet. As a single specimen on a lawn, or for grouping in shrubberies, it is of rapid growth and great beauty, while its adaptation as a hedge plant is unsurpassed. *L. ovalifolium variegatum* is a vigorous, compact grower, the young leaves of which have a beautiful yellow tint, passing into white as the leaves get older. All the species are readily increased by cuttings.

Lilac. See *Syringa vulgaris*.

Lilia'ceæ. Including *Hemerocallideæ*, *Tulipaceæ*, *Coronariæ*, *Asphodeleæ*, *Asparagineæ*. and *Convallariaceæ*. A natural order of herbs, shrubs, or trees, with bulbs, corms, rhizomes, or fibrous roots, simple, sheathing, or clasping leaves, and regular flowers. They are natives of both temperate and tropical regions, and possess medicinal qualities. Onions, Leeks, Garlic, Chives, Shallot, Rocambole, Tulips, Hyacinths, Lilies, etc., are all furnished by plants belonging to this extensive order. There are upward of 150 genera and 1,200 species. *Lilium*, *Tulipa*, *Hyacinthus*, *Yucca*, *Agapanthus*, *Asphodelus*, and *Dracæna*, are examples of the order.

Lilium. The Lily. From the Celtic word *li*, signifying whiteness; the lily having long been considered an emblem of whiteness and purity. Nat. Ord. *Liliaceæ*.

This genus, the type of an extensive order, numbers upward of sixty species, and is eminently distinguished for its surpassing loveliness, its rare combination of grandeur and chaste beauty. A remarkable feature in this family of plants is, that it has no *poor relations*. In a general collection of the species, all that can be imagined desirable and perfect in floral forms will be realized. A great inducement to the cultivation of this genus is their ease of culture, and their almost perfect hardiness, thriving with all the vigor of indigenous forms when planted in the flower border. All of them delight in light rich soil, such as is afforded by a mixture of loam and

well-rotted manure, and one uniform treatment is applicable under all circumstances to the whole of the species; all may be grown together in the border, and remain undisturbed a number of years, frequent removals being injurious, by destroying the roots. All the species thrive best when planted in partial shade, the shrubbery border, or in large beds in an open grove. Propagated by offsets. When the old bulbs have several small ones formed around them, take them up in October, divide them into single bulbs, and replant the large flowering bulbs immediately into fresh, rich earth, where they are to flower. Plant the small bulbs in a bed of the same kind of soil by themselves; let them remain until sufficiently large and strong for flowering, which should require but two years; then take them up, select the larger bulbs, and plant them where they are to remain, taking care to enrich the earth with well decomposed manure; the small ones to be replanted as before. *L. candidum* should be taken up and replanted in August or first part of September, as the bulbs make a growth in autumn, upon which in a great measure depends their flowering the coming season. In selecting the situation for the Lily-bed, care should be taken to have the dryest spot possible, where water is not liable to stand in the winter. A good mulching of leaves, coarse manure, or evergreen boughs will prove highly beneficial. The species are pretty generally distributed throughout the temperate regions of the northern hemisphere; a few only are found in the mountains of sub-tropical Asia. California has furnished several that are among the more difficult to cultivate here, because of the difference in the seasons of growth. Japan has furnished by far the greater number of really excellent species, among which are *L. auratum*, or Golden-banded, of which there are many beautiful varieties in cultivation; *L. speciosum* and its varieties; *L. Kramerii*, *L. Leichtlinii*, *L. Tigrinum flore pleno*, *L. Thunbergianum* in variety, *L. longiflorum*, *L. Hansoni*, etc. *L. candidum*, the oldest known species, comes from the Levant. Asia furnishes *L. Chalcedonicum* and *L. giganteum*; Siberia the beautiful little *L. tenuifolium*, which is there grown as an article of food. The United States contributes *L. superbum*, *L. Canadense*, *L. Philadelphicum*, *L. Catesbœi*, *L. Carolinianum*, and *L. Columbianum*, together with *L. Washingtonianum*, *L. Humboldti*, *L. parvum*, *L. Californicum*, *L. pardalinum*, *L. Roezlii*, *L. Parryi* and *L. Walkerii* from California. Most of the other species are found scattered throughout Europe. The great popularity of this flower has induced the growers and dealers to sub-divide the species and multiply varieties to such an extent as to bewilder the amateur in making a selection. A prominent European house offers sixty varieties of *L. elegans* (*L. Thunbergianum*), and nearly as many of L. *speciosum* (*L. lancifolium*). *L. candidum*, the Annunciation, or St. Joseph's Lily, has eight varieties, *L. umbellatum* about thirty, any one of which would well represent the family. All the species succeed well grown in pots, but several bear what is termed forcing, or being made to bloom out of their natural season. The principal of these are *L. candidum*, *L. longiflorum*, and *L. Harrisii*. The latter of these, *L. Harrisii*, or the Bermuda Easter Lily, was introduced into general cultivation about 1878. There is some question whether it is a "sport" from the old *Lilium longiflorum*, or Trumpet Lily, or whether long years of cultivation in the congenial climate of Bermuda has so changed the nature of the plant as to give it the wonderful free-flowering properties it possesses. We are inclined to think the variety is distinct from *L. longiflorum*, for it is not only more prolific in flowering, but the flowers are wider and more robust, a result not to be expected from any temporary cultivation in a climate no matter how congenial. The rules for the cultivation of the Bermuda Easter Lily are almost identical with those in use for Roman Hyacinths, or Lily-of-the-Valley (see *Convallaria*), except that after the boxes or pots are filled with roots the time for the development of the flower is longer. The dry bulbs, however, usually can be procured as early as the first week in August, and if potted or boxed up at that time, and placed outside, will form roots sufficient to enable them to be brought into the green-house by the first of October, and if kept in a temperature of sixty degrees at night, with ten or fifteen degrees higher during the daytime, will give a crop of flowers by Christmas. The Bermuda Lily is largely used for decoration at Easter, and for that season, beginning to force in January will be soon enough. *Lilium longiflorum* and *L. candidum* require exactly the same treatment, except that neither of these can be made to flower so early as the Bermuda Lily.

It may be added here that the Californian Lilies often remain a whole year in the ground before growing.

Lily. A general name for plants of the genus *Lilium*, applied also to various other plants.

African. *Agapanthus umbellatus.*
Annunciation. *Lilium candidum.*
Atamasco. *Zephyranthes Atamasco.*
Belladonna. *Amaryllis Belladonna.*
Bermuda. *Lilium Harrisii.*
Blackberry. *Pardanthus Chinensis.*
Cape. *Crinum Capense.*
Chequered. *Fritillaria Meleagris.*
Cuban. *Scilla Peruviana.*
Easter. *Lilium longiflorum* and *L. Harrisii.*
Golden banded. *Lilium auratum.*
Guernsey. *Nerine Sarniensis.*
Jacobean. *Sprekelia* (*Amaryllis*) *formosissima.*
Japan. *Lilium speciosum.*
Knight's Star. The genus *Hippeastrum.*
Martagon. *Lilium Martagon.*
Mediterranean. *Pancratium maritimum.*
Of the Amazon. *Eucharis Amazonica.*
Of the Nile. *Richardia Æthopica.*
Of the Valley. See *Convallaria majalis.*
Of the Valley, Tree. *Andromeda floribunda.*
Orange. *Lilium croceum.*
St. Bruno's. *Anthericum Liliastrum.*
St. James's Cross. *Sprekelia formosissima.*
St. Joseph's. *Lilium candidum.*
Scarborough. *Vallota purpurea.*
Scarlet Martagon. *Lilium Chalcedonicum.*
Swamp. *Lilium superbum.*
Sword. The genus *Gladiolus.*
Tiger. *Lilium tigrinum.*

LIL

Tom Thumb. *Lilium tenuifolium.*
Trumpet, White. *Lilium longiflorum.*
Turban. *Lilium Pomponium.*
Turk's Cap. Varieties of *Lilium Martagon.*
Turk's Cap, American. *Lilium superbum.*
White Water. See *Nymphæa adorata.*
Yellow Pond. *Nuphar advena.*

Lily-Thorn. The genus *Catesbæa.*

Lima Bean. See *Phaseolus lunatus.*

Limato'des. Name unexplained. Nat. Ord. *Orchidaceæ.*

A genus of East Indian terrestrial Orchids, nearly allied to *Calanthe.* *L. rosea* is a very beautiful plant. The flowers are from pure white to the deepest pink, produced on a tall spike, which proceeds from the base of the bulb after the foliage has died away. They require the same treatment as the *Calanthe.*

Limbate. Having one color surrounded by an edging of another.

Lime. See *Fertilizers.*

Lime, of commerce. See *Citrus.*

Lime Tree, or *Linden.* See *Tilea.*

Limna'nthemum. Floating Heart; From *limne,* a marsh, and *anthos,* a flower; from the situations where they grow. Nat. Ord. *Gentianaceæ.*

A genus of very interesting and beautiful aquatic plants, closely allied to *Villarsia,* two species of which are occasionally met in ponds from Maine southward. *L. lacunosa,* is a charming plant having at first sight the appearance of a miniature Water Lily. Its leaves are from one to two inches in diameter, beautifully blotched with brown, giving them an appearance similar to those of the Cyclamen. The flowers are white, about half an inch across, and very curiously borne upon the same stem which bears the leaves. The plant blooms freely all summer, and will grow in either shallow or deep water, and would make a charming plant for the aquarium. *L. Nymphæoides,* a European species is perfectly hardy and produces its bright yellow flowers in great profusion. It is a very beautiful hardy aquatic, but somewhat difficult to eradicate when once established.

Limna'nthes. From *limne,* a marsh, and *anthos,* a flower; in allusion to the habitat of the plant. Nat. Ord. *Geraniaceæ.*

A small genus of hardy annuals from California. They are of trailing habit, and produce small white, and yellow and white flowers, quite fragrant and neat, but not showy. They come soon into flower after the seed is sown, and a succession of flowers can be kept up by occasional sowings during summer. They are not at all particular as to soil, but prefer a moist situation.

Limno'bium. American Frog's Bit. From *limnobius,* living in pools. Nat. Ord. *Hydrocharidaceæ.*

A genus of aquatic plants, floating in stagnant water, common almost everywhere.

Limno'charis. From *limne,* a pool, and *chairo,* to delight in; referring to their habitat. Nat. Ord. *Alismaceæ.*

A small genus of green-house aquatic plants, with yellow flowers and heart-shaped leaves, natives of Brazil. Two species, *L. Plumieri* and *L. Humboldtii,* are in cultivation, and are favorite plants for the aquarium.

LIN

Limodo'rum tuberosum. A synonym for *Calopogon pulchellus.*

Limo'nia. From *limoun,* the Arabic name of the Citron. Nat. Ord. *Rutaceæ.*

A small genus of evergreen shrubs from the East Indies, China and New Holland. *L. acidissima,* typical of the genus, is a spiny shrub growing eight or ten feet high, and having pinnate leaves with winged stalks, and racemes of pure white flowers. The fruit is about the size of a damson plum, yellow, with a red or purplish tint. The Javanese employ the extremely acid pulp of these fruits as a substitute for soap. The fruit is also used medicinally.

Limonia'strum. From *leimon,* a meadow, and *Aster,* a star; in allusion to the starry flowers, and the habitat of the plants. Nat. Ord. *Plumbaginaceæ.*

A small genus of nearly hardy shrubs, natives of the western Mediterranean region. They are closely allied to *Statice* and have the blue flowers and general appearance of some of the more twiggy species of that genus. All the green parts of the plants are covered with white discs of calcareous matter.

Limoo. A name used in some of the Pacific Islands for Sea-weed.

Lina'ceæ. A small natural order of herbs, or shrubs, with entire, sessile, alternate, opposite, or verticillate leaves, which have occasionally a pair of minute glands at the base. Flowers regular and hermaphrodite, usually terminal, blue, yellow or white, rarely pink. *Linum usitatissimum,* yields the flax and linseed of commerce. The order contains fourteen genera, and over 125 species.

Lina'ria. Toad Flax. From *linum,* flax; on account of the similarity of the leaves. Nat. Ord. *Scrophulariaceæ.*

A very large genus of hardy annuals, herbaceous perennials, and a few half-hardy and tender species. Many of them are exceedingly ornamental. *L. cymbalaria* is the well-known Kenilworth Ivy, or Coliseum Ivy, a valuable trailing plant, and one of the best for hanging-baskets and rustic designs. There is a very pretty variegated form of this species. *L. triornithophora,* remarkable for the resemblance of its flowers to three little birds attached to the spur. *L. vulgaris,* commonly known as Butter-and-Eggs, was introduced into Philadelphia as a garden flower many years ago, and has become thoroughly naturalized, and a perfect nuisance in many parts of the country. When once introduced it takes almost complete possession of the soil, producing an almost innumerable number of seeds, besides its rapid increase by means of its numerous spreading roots. The useful species are all readily increased from seeds.

Linco'nia. Said to be a south African name. Nat. Ord. *Bruniaceæ.*

A genus of ornamental Epacris-like, green-house shrubs, natives of the Cape of Good Hope. The leaves are spirally arranged, and the solitary white flowers are borne in the axils of the upper leaves. They were first introduced in 1816 and require the same culture as the *Diosma,* which they much resemble.

Lindelo'fia. Named in honor of *Freidrich von Lindelof*, of Darmstadt, a patron of botany. Nat. Ord. *Boraginaceæ*.

L. spectabilis is a rather showy perennial, growing about one and a half feet high, bearing in early summer, drooping clusters of deep purple-blue flowers. It is hardy in well drained situations, but is not so valuable a plant as many others of the same order. Syn. *Cynoglossum longiflorum*.

Linden. See *Tilia*.

Linde'nia. Named after *J. Linden*, a Belgian horticulturist. Nat. Ord. *Rubiaceæ*.

A small genus, natives of Mexico, Central America, and the Fiji Islands. *L. rivularis*, the only species yet in cultivation, is a distinct plant, with rather small lanceolate leaves, and bearing solitary long-tubed white flowers nearly five inches long, from short spurs. Although the flowers are solitary, the plant is very free-blooming and is remarkably interesting. It was introduced from Mexico in 1856, and is propagated by cuttings of the ripened wood.

Linde'ra. Wild Allspice. Fever Bush. Named after *John Linder*, a Swedish botanist. Nat. Ord. *Lauraceæ*.

A tall-growing shrub, common in damp woods from New York southward. Syn. *Laurus Benzoin*.

Lindhei'mera. Named in honor of *F. Lindheimer*, the discoverer of the plant. Nat. Ord. *Compositæ*.

L. texana, the only species is an erect, branching, half-hardy annual, with yellow flowers resembling a Zinnia. Introduced to cultivation from Texas.

Li'ndleya. Named after *Professor Lindley* by Humboldt and Kunth. Nat. Ord. *Rosaceæ*.

L. mespiloides, the only species, is an ornamental, low-growing, evergreen tree or shrub, native of the mountainous regions of Mexico. It has simple, crenulate, shining leaves, and solitary, large, white, sweet-scented flowers, borne on the tips of its branchlets. It was introduced to cultivation in 1843, and is propagated by cuttings of the ripened wood in heat, or by grafting on the Hawthorn.

Lindsæ'a. A synonym of *Lindsaya*, which see.

Lindsay'a. Named after *Archibald Lindsay*, a distinguished English botanist. Nat. Ord. *Polypodiaceæ*.

A genus of about fifty species of handsome tropical ferns, most of them difficult to cultivate.

Linear. Narrow, short, with parallel margins, as the leaf of the Yew.

Ling. *Calluna vulgaris*, also a Chinese name for *Trapa bicornis*.

Li'nnæa. Twin-Flower. Dr. J. F. Gronovius, with the concurrence of Linnæus, selected this little depressed, early-flowering, long-overlooked northern plant, to transmit the illustrious name of Linnæus to posterity. Nat. Ord. *Caprifoliaceæ*.

L. borealis, the only species, is a beautiful little trailing evergreen plant, with long, slender branches, bearing small ovate or obovate leaves, slightly toothed at the top, and sending up erect, thread-like flower stalks, which fork near the top, and bear two gracefully drooping, very fragrant bell-like flowers, of a pale pink or nearly white color, and almost half an inch in length. It grows almost exclusively in woods, in cold, moist situations, is common from New Jersey northward, and is widely dispersed over northern Europe and Asia. According to some writers, its scent is so powerful, especially at night, that it may be discovered at a considerable distance. The Laplanders use a decoction of its flowers as a remedy in rheumatic complaints.

Linosy'ris. A genus of *Compositæ* of little horticultural value. *L. divaricata*, with golden-yellow flowers, a native of Australia, is in cultivation as a hardy, herbaceous perennial. *L. vulgaris*, Goldilocks, is a showy British perennial producing its bright yellow flowers in terminal clusters in late summer and autumn. Syn. *Chrysocoma Linosyris*.

Li'num. Flax. From the Celtic word *llin*, a thread; whence the Greek *linon*, and the Latin *linum*. Nat. Ord. *Linaceæ*.

This genus contains upward of fifty species of various characters, some rising to be small shrubs, hardy and tender perennials, biennials, and annuals; all of them interesting, and many very handsome. The tender species require the ordinary treatment of green-house plants. *L. triginum* (Syn. *Reinwartia trigina*) is one of the most beautiful of all our yellow-flowering shrubby green-house plants; while *L. grandiflorum*, one of the best and most showy annuals in cultivation, has magnificent crimson flowers. *L. flavum*, and all the tall-growing species find a place in the borders, and the dwarf kinds on the rock-work or in the rock-gardens. The latter are somewhat impatient of wet in winter, and in consequence are usually potted in autumn, and kept in a cold-frame during winter. *L. usitatissimum*, the common annual Flax, has been an object of cultivation from the earliest times. Mr. B. Clarke thus describes it in the "Treasury of Botany:" "The plant has, for the most part, solitary, quite erect stems, alternate smooth linear-lanceolate leaves, and a corymbose inflorescence; the sepals are ovate-acute, with a membraneous margin; and the petals are blue, three times longer than the calyx. The finer kinds of the linen of commerce are manufactured from the ligneous fibres of the stem of this plant; and the seed, called Linseed, is scarcely less valuable, on account of the large quantity of oil contained in the embryo. The seeds contain a mucilage, which, dissolved in water, is demulcent and emollient, and the meal of the seed is used for poultices. The cake remaining after the oil is expressed, is extensively used in fattening cattle." *L. catharticum*, remarkable for its erect, much-branched stems, its opposite, smooth, obovate-lanceolate leaves, and small white flowers, is occasionally used in medicine, being bitter and purgative.

Lion's Ear. See *Leonotis*.

Lion's Foot. See *Leontopodium*.

Lion's Tail. *Leonotis Leonurus*.

Lipa'ria. From *liparos*, oily, shining; in allusion to the shining surface of the leaves. Nat. Ord. *Leguminosæ*.

A genus of south African shrubs with undivided, alternate, lanceolate leaves, and bright yellow flowers, in terminal heads. *L.*

LILIUM AURATUM VITTATUM.

LILIUM TENUIFOLIUM.

LILIUM UMBELLATUM.

LILIUM SPECIOSUM.

LILIUM CANDIDUM.

LILIUM WASHINGTONIANUM.

LILIUM COLCHICUM.

LOLIUM ITALICUM (ITALIAN RYE-GRASS).

LOLIUM PERENNE (ENGLISH RYE-GRASS).

LOASA HIRTA.

LOBELIA (TYPE OF HARDY VARIETIES).

LINUM FLAVUM.

LOBELIA (DWARF).

parva and *L. sphærica*, the two species introduced, are propagated by cuttings of the young shoots, and thrive best in a compost of turfy loam and fibrous peat.

Li'paris. From *liparos*, unctuous; referring to the leaves. Nat. Ord. *Orchidaceæ*.

A small genus of terrestrial and epiphytal Orchids, of no special merit. They have mostly purplish or greenish flowers. Several of the species are common in moist woodlands in the Middle States and westward.

Lip Fern. See *Cheilanthes*.

Li'ppia. In honor of *A. Lippi*, a French physician. Nat. Ord. *Verbenaceæ*.

A large genus of shrubs or sub-shrubs, rarely herbs, mostly American, a few being found in Africa. But few of the species are in cultivation. *Aloysia citriodora*, the Lemon Verbena, is by some, placed in this genus.

Liquida'mbar. From *liquidus*, liquid, and *ambar*, amber; referring to the gum, called liquid storax, produced by some species. Nat. Ord. *Hamamelidaceæ*.

A genus of beautiful deciduous trees. *L. styraciflua*, our common Sweet Gum Tree, is one of our finest forest trees, and one deserving more general cultivation on the lawn, and for a shade tree upon the roadsides. It is a tall, erect-growing tree of elegant appearance, especially in autumn, when its beautiful star-shaped leaves which are very fragrant when bruised, or after a shower when young, change to a bright red, quite as conspicuous as those of the Maple, and remain on the tree much longer. This is the tree whose rough, corky-ridged branches, are sold in the streets of New York as the "Alligator Plant." These pieces of stick are sold by the thousands every season at from twenty-five to fifty cents each, to unsophisticated city men, with about as much chance of growing as their fence pickets. There are several other species, one from the Levant, and the others of late introduction from Formosa, one or more of which furnish the wood used by the Chinese to make the chests in which they export their tea. They are increased by seeds.

Liquid Manures. See *Manures*.

Liquorice. See *Glycyrrhiza*.

Liriode'ndron. Tulip Tree. From *leirion*, a lily, and *dendron*, a tree; the flower produced by this tree bears some resemblance to a Lily, but is more like a Tulip. Nat. Ord. *Magnoliaceæ*.

L. tulipifera, the only species, is one of our most beautiful forest trees, and has no superior for a shade tree where there is plenty of room for its perfect development. It is common from Canada to Louisiana in rich woodlands, where it sometimes attains a height of 200 feet, with a trunk as straight as an arrow. Its flowers which are of the size and shape of Tulips, and very fragrant, are produced in June in the greatest abundance. Color greenish white, variegated with yellow and orange. There are two varieties of the species, one of which furnishes white, the other yellowish lumber. The former is of but little value to the mechanic, but the latter is highly esteemed for cabinet work, for boat-building and especially in the manufacture of wooden pumps, wooden-ware, etc.; it is also largely used for carriage bodies. Liriodendrin, a stimulant tonic, with diaphoretic properties, is obtained by macerating the inner bark, especially the root. It is propagated by seeds sown as soon as ripe.

Li'riope graminifolia. A synonym of *Ophiopogon spicatum*.

Lisia'nthus. From *lysis*, the termination of a disease, and *anthos*, a flower; referring to its intense bitterness and medicinal properties. Nat. Ord. *Gentianaceæ*.

This genus is composed of green-house annuals and evergreens, mostly of little merit as flowering plants, the exception being *L. princeps*, an evergreen shrub from New Grenada, that has long hanging flowers of a rich scarlet, shading into yellow at either end, and having an emerald green, five-lobed limb. This species is propagated by cuttings, and was introduced in 1848. *L. Russellianus* (Syn. *Eustoma Russellianum*), an annual or biennial from Mexico, is another very pretty species with rich blue flowers shaded with purple. It is propagated only by seeds.

Lissa'nthe. From *lissos*, smooth, and *anthos*, a flower; in reference to the limb of the corolla being destitute of hairs. Nat. Ord. *Epacridaceæ*.

A genus of small, rigid shrubs, sometimes not more than three or four inches high, and seldom exceeding five feet, having small needle-pointed leaves, and small, usually white flowers, borne in short spikes from the sides of the branches. *L. sapida*, a native of south-eastern Australia, is called the Australian Cranberry, on account of its resemblance both in size and color to the European Cranberry, but its flesh is thin, and more like that of the Siberian Crab. The fruits of *L. strigosa*, and *L. Montana* are eaten in Tasmania, the latter being a very dwarf mountain species, bearing large, white, transparent, fleshy fruits.

Lissochi'lus. From *lissos* smooth, and *cheilos*, a lip; in allusion to the lip of the flower. Nat. Ord. *Orchidaceæ*.

A genus of terrestrial Orchids from Africa, producing racemes of rather showy flowers from the base of the pseudo-bulbs. The species are not very numerous, and the few are only met with in large collections.

Li'stera. Twayblade. Dedicated to *Dr. Martin Lister*, an early British naturalist. Nat. Ord. *Orchidaceæ*.

A small genus of terrestrial Orchids, bearing slender spikes of small green flowers, of no special interest except in botanical collections. The several species are common throughout the United States.

Lita'nthes. From *litos*, small, and *anthos*, a flower; because of the extremely small size of the plant. Nat. Ord. *Liliaceæ*.

L. pusillus, the only species, is an exceedingly small bulbous plant, having a bulb about the size of a pea. The flowers are small, white, solitary and drooping. It was introduced from South Africa in 1870, and forms a pretty object when grown in clumps in a pot.

Lithospe'rmum. Gromwell. From *lithos*, a stone, and *sperma*, a seed; the little nuts or seeds are extremely hard, and have a surface as smooth as polished pebbles. Nat. Ord. *Boraginaceæ*.

Annual and perennial herbs, and sometimes shrubs, of easy culture. Some of the species are well adapted for rock-work and for the border. *L. prostratum* is, unquestionably, one of the most beautiful of spring-flowering perennials, when it succeeds properly. A light, well-drained soil is necessary to have it in perfect health. It is a prostrate, half-shrubby plant, with rich, deep-blue flowers, resembling those of the Forget-me-not, and succeeds best in a light, well-drained soil. It is a native of southern Europe, and was introduced in 1825, and is easily increased by seeds or cuttings.

Litmus. A blue dye prepared from *Rocella tinctoria*, and some other Lichens. It is of great importance to chemists, as it affords a delicate test for acids and alkalies, since blue litmus paper acquires from acids a red tint, which is restored by alkalies.

Litobro'chia. A commemorative name. Nat. Ord. *Polypodiaceæ*.

An extensive genus of tropical Ferns, differing from *Pteris* only in the reticulation of the veins of the fronds.

Li'tsæa. From the Japanese name. Nat. Ord. *Lauraceæ*.

A large genus of half-hardy or green-house shrubs or trees, natives of the Malayan Archipelago to Japan, Australia, New Zealand, etc. *L. glauca* and *L. Japonica*, both Japanese species, are handsome bushes for green-house or conservatory decoration.

Littæ'a. Under this name Tagliabue, an Italian botanist, described a South American *Agave*, which flowered for the first time in Europe in the garden of the *Duke of Litta*, near Milan, in 1815, but which now bears the name of *Agave geminiflora*.

Litto'nia. Named after *Dr. S. Litton*, once Professor of Botany at Dublin. Nat. Ord. *Liliaceæ*.

A genus comprising only only two species of South African plants. They are half-climbing in habit, bearing showy orange-colored flowers. *L. modesta*, the only species yet introduced. is an elegant green-house plant, very like *Gloriosa* in habit and appearance.

Littoral. Growing on the sea-shore.

Lituate. Forked, with the points a little turned outward.

Live-Forever. See *Sedum*.

Live Oak. See *Quercus virens*.

Liver-Leaf. The popular name of *Hepatica triloba*, from a supposed resemblance of the leaves.

Livistona. Named in honor of *Patrick Murray, of Livingston*, near Edinburgh, Scotland. Nat. Ord. *Palmaceæ*.

A genus of very interesting and ornamental Palms, natives of southern China, the Malayan Archipelago, New Guinea, and Australia. Two of the species attain a height of from ninety to one hundred feet; the remaining species rarely exceed thirty or forty feet in height. *L. Australis*, also called *Corypha Australis*, is one of the few palms found in Australia, and is principally found along the coast, and is the tallest of the species. Its unexpanded leaves, prepared by being scalded and then dried in the shade, are used for making hats, while the younger and more tender leaves are eaten like cabbages. It is very largely grown for

decorative purposes in all the large cities of the United States. In Assam the leaves of *L. Jenkinsiana* are used for making the peculiar umbrella hats worn in that country. *L. altissima*, introduced from Java in 1868, is a very beautiful species now largely used as a summer decorative plant. *L. Chinensis* (Syn. *Latania Borbonica*), under which name it is generally cultivated, is a well-known and very handsome Palm and makes a very beautiful plant for the lawn in summer. When grown in tubs or large pots, this Palm is one of the best suited and most largely used for the decoration of hotel verandas; thousands are now in use for that purpose. Exceedingly fine specimens of this beautiful Palm are now growing in the Botanic Gardens at Washington. Several other species are in cultivation and they are all admirably adapted for various decorative purposes, and especially for the sub-tropical garden. They are propagated by seeds sown in heat.

Lizard's Tail. The common name for *Saururus cernuus*.

Lla'vea. In honor of *M. La Llave*, the discoverer of the only known species. Nat. Ord. *Polypodiaceæ*.

L. cordifolia, the only species, is a very interesting Fern, found in the higher elevations of Mexico. It requires the same treatment as most green-house Ferns.

Lloy'dia. Named after Edward Lloyd, who first discovered the plant in North Wales. Nat. Ord. *Liliaceæ*.

A small genus of two species of bulbous plants, the best known of which, *L. serotina*, has white, solitary, erect flowers, veined externally with green. It is found on the rocky ledges of the Snowdon range in Wales, and the mountains and Arctic regions of the Northern hemisphere. Syn. *Anthericum serotinum*.

Loa'sa. The native name in South America. Nat. Ord. *Loasaceæ*.

A genus of very curious climbing or creeping plants, of annual or biennial duration, having yellow, white, or scarlet flowers. The seed should be sown in March in a gentle heat, and after being gradually hardened the plants may be removed to the borders of the flower-garden. The leaves of all the species have more or less of the irritating qualities of the common Stinging Nettle. They are all natives of Chili, and were introduced in 1822.

Loasa'ceæ. A natural order of herbs, with rigid or stinging hairs, opposite or alternate, exstipulate leaves, and showy flowers, natives of tropical and sub-tropical America. The species are of little economic value; some of them, from their stinging qualities are called Chili Nettles. There are about ten genera and 100 species, *Loasa* being the best known.

Lobate. Lobed; divided into a number of segments.

Lobately-crenate. Having deep crenatures, or indentations.

Lobe. A rounded projection or division of a leaf or other organ.

Lobe'lia. Named in honor of *Matthew Lobel*, author of various botanical works. He was a

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native of Lille, became physician and botanist to James I., and died in London in 1816. Nat Ord. *Campanulaceæ.*

An extensive and varied group of interesting plants. The genus consists of over eighty species, many of which are highly ornamental and useful in the garden and in the greenhouse. *L. erinus* and its varieties are trailers, and remarkable for their profusion of beautiful blue flowers. They are usually treated as annuals, and grown from seed, but succeed well when grown from cuttings. This species was introduced from the Cape of Good Hope in 1752, and from it have sprung numerous varieties, running through all shades of blue rose, lilac, etc. A very pretty double blue variety was originated in 1870. *L. cardinalis*, Cardinal Flower, a native species, common throughout the States, is one of the most brilliant flowers in cultivation. Though usually found in moist places, it will grow well in the border, and is one of our best plants to grow on the shady side of the house. *L. syphilitica*, another species common to our brook and river sides, has beautiful blue flowers, and is well worthy of cultivation. *L. inflata* (Indian Tobacco), an annual species, common in the Northern States, is, perhaps, the best known of the whole family, because of the medicinal properties it was formerly supposed to possess. It is still largely used in medicine, but is not now considered a specific for every disease that flesh and blood are heirs to.

Lobelia'ceæ. A tribe of *Campanulaceæ.*

Lobel's Catchfly. See *Silene armeria.*

Loblolly Bay. See *Gordonia.*

Lobster-Leaved Cactus. See *Epiphyllum.*

Loco. See *Astragalus.*

Locular. Divided into cells.

Locust Tree. The common name for the genus *Robinia;* also used for *Ceratonia Siliqua*, and *Hymenæa.*

Locust Tree. Of Scripture, or St. John's Bread. See *Ceratonia.*

Loddige'sia. Named after *Conrad Loddiges*, founder of a once celebrated London nursery. Nat. Ord. *Leguminosæ.*

L. oxalidifolia, the only species is a much-branched evergreen shrub, with trifoliate leaves, and bearing pinkish flowers, with a dark purple keel, borne in three to eight-flowered umbels in June. It was introduced from the Cape of Good Hope in 1802, and is easily increased by cuttings in April.

Lodoi'cea. Coco de Mer. Double Cocoanut. Named after *Laodice*, the daughter of Priamus and Hecuba. Nat. Ord. *Palamceæ.*

L. Seychellarum, the only species of this genus, is one of the most remarkable of the order. It is found only on the islands Praslin and Curiense of the Seychelles group. This Palm has a nearly cylindrical trunk, scarcely exceeding a foot in diameter, grows to the height of one hundred feet, and bears a crown of fan-shaped leaves, some of which are upward of twenty feet long and twelve feet wide. Many marvelous stories are told of this tree, its fruit, and its uses. We give the description and history of this Palm, which is far more wonderful than fiction, in the language of Thomas Moore, F.L.S., as related in the

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"Treasury of Botany:" "This magnificent Palm requires a great length of time to arrive at maturity. The shortest period before it puts forth its flower-buds is thirty years, and a hundred years elapse before it attains its full growth. From the age of fifteen to twenty-five years it is in its greatest beauty, the leaves at this period being much larger than they are subsequently. The stem grows quite upright, straight as an iron pillar, and in the male trees frequently attains 100 feet in height, the females being shorter. At the age of thirty it first puts forth its blossoms, the males forming enormous catkins, about three feet in length and three inches in diameter, while the females are set on a strong zig-zag stalk, from which hang four or five, or sometimes as many as eleven nuts, averaging about forty pounds weight each. From the time of flowering to the maturation of the fruit, a period of nearly ten years elapses, the full size, however, being attained in about four years, at which time it is soft and full of a semi-transparent, jelly-like substance. The arrangements provided by nature for the roots of this tree are of a most peculiar kind. The base of the stem is rounded, and fits into a natural bowl or socket about two and a half feet in diameter and eighteen inches in depth; this bowl is pierced with hundreds of small oval holes about the size of a thimble, with hollow tubes corresponding on the outside, through which the roots penetrate the ground on all sides, never, however, becoming attached to the bowl, their partial elasticity affording an almost imperceptible but very necessary 'play' to the parent stem when struggling against the force of violent gales. This bowl is of the same substance as the shell of the nut, only much thicker. It rots very slowly, for it has been found quite perfect and entire in every respect sixty years after the tree has been cut down."

Lœse'lia. Named after *John Lœsel*, author of "Flora Prussica." Nat. Ord. *Polemoniaceæ.*

A genus of glabrous, slightly viscid shrubs or herbs, natives of Mexico, Central America, and New Grenada. The flowers are axillary, scarlet or white, the upper ones often crowded at the apices of the branches; leaves alternate or opposite, undivided, often acutely toothed. *L. coccinea*, a very showy scarlet species, is generally found under the name of *Hoitzia coccinea.* They are easily increased by cuttings.

Loga'nia. A genus comprising about twenty Australian species, and one from New Zealand, all herbs or small shrubs, of no particular interest, either as useful or ornamental plants. It has given its name to the order *Loganiaceæ.*

Logania'ceæ. A natural order of herbs, shrubs, or trees, of variable habit, closely allied to *Rubiaceæ.* They inhabit chiefly tropical countries, and are bitter and highly poisonous, both in bark and seeds. The Poison-Nut, *Strychnos nux-vomica*, belongs to this order. There are about thirty genera, and 350 species. *Spigelia*, *Strychnos*, and *Logania* are the most easily recognized examples.

Logwood. See *Hæmatoxylon.*

Loiseleu'ria. Alpine Azalea. Named for *Loiseleur Deslongchamps*, a French botanist. Nat. Ord. *Ericaceæ.*

L. procumbens, the only species, is a trailing evergreen shrub with small elliptical leaves, and terminal clusters of small rose-colored or white flowers. It is found on the summits of the White Mountains in New Hampshire, in the most rocky situations.

Lo'lium. Rye Grass. The old Latin name used by Virgil and Pliny. Nat. Ord. *Graminaceæ.*

A widely distributed genus of grasses, the most important of which, in agricultural economy, is *L. perenne*, commonly called Rye-grass, which has had the reputation in Great Britain, for many years, of being one of the most important and valuable of the cultivated grasses. The leaves are generally abundant and luxuriant on rich moist soil, but on poorer, light and gravelly soils they are often so scanty as to render the grass of little value either for hay or pasturage. This difference of development in various situations, will, in a great degree, account for the difference of opinion that exists in regard to the value of this grass for agricultural purposes.

L. Italicum. Italian Rye Grass, a variety of the above is considered in England one of their best grasses to cut for soiling, as it affords a large and nutritive crop.

L. temulentum. Darnel, is an annual grass closely allied to the Rye-grass, and is remarkable as the only species of the family known to possess poisonous properties. It is a common weed among other grains, especially wheat, throwing up a stem two or three feet high, bearing a spike somewhat resembling that of the other species. The seeds of this grass are extremely deleterious, acting as a narcotic poison and, if taken in small quantities for a long period together, causing a peculiar disease called dry gangrene, resembling that occasioned by the ergot of rye. The bad reputation of this species has prejudiced that of the other, and useful species. The "Tares" of Scripture are supposed to refer to this species.

Loma'ria. From *loma*, an edge; referring to the position of the spore or seed cases on the leaves. Nat. Ord. *Polypodiaceæ.*

An extensive and interesting genus of Ferns, including hardy, green-house, and hot-house species. They occur in most parts of the world, and comprise examples with simple pinnatifid and pinnate fronds, while one species, *L. Fraseri*, has a slender, tree-like stem, and bi-pinnatifid fronds, but it is quite exceptional in the genus. *L. Gibba*, a dwarf species, is largely grown for decoration. They are all of easy culture and are propagated by spores.

Loma'tia. From *loma*, an edge; referring to the winged edge of the seeds. Nat. Ord. *Proteaceæ.*

A small genus of South American and Australian evergreen shrubs or small trees, with simple pinnate and bipinnate leaves of a leathery texture. A few of the species are grown in collections of plants with variegated or ornamental foliage. They require ordinary green-house treatment, and are propagated by cuttings.

Lomatophy'llum. From *loma, lomatos*, a border, and *phyllon*, a leaf; alluding to the distinctly-bordered leaves. Nat. Ord. *Liliaceæ.*

A small genus of green-house succulent plants, allied to *Aloe*. *L. Aloiflorum*, or Bourbon Aloe, the only species in cultivation, has smooth leaves nearly three feet long, and two to three inches broad. The stems in old specimens measure about eight feet high, and are nearly as thick as a man's thigh. It was introduced from the Island of Bourbon in 1766 under the name of *Phylloma aloiflorum.*

Lombardy Poplar. See *Populus.*

Lo'nas. Derivation unknown. Nat. Ord. *Compositæ.*

L. inodora, the only species, is a hardy, erect, branched, annual herb, thriving in any ordinary garden soil. It produces its small yellow flowers in dense, terminal-crowded corymbs from July to October.

Lonchi'tis. From *lonche*, a lance; alluding to the shape of the fronds. Nat. Ord. *Polypodiaceæ.*

A small genus comprising two species of plant-stove ferns. *L. pubescens*, an introduction from the Mauritius has deltoid, tri-pinnatifid fronds, two to four feet long, with marginal sori, placed in the sinuses of the fronds, and more or less distinctly reniform.

Lonchoca'rpus. From *lonche*, a lance, and *karpos*, a fruit; in allusion to the shape of the pods. Nat. Ord. *Leguminosæ.*

An extensive genus of ornamental shrubs, natives of tropical America, Africa and Australia. *L. roseus*, probably the only species yet introduced, has erect, simple racemes of large, showy, rose-colored flowers. It was introduced from South America in 1700, and is propagated by cuttings of the half-ripened young wood.

London Pride. See *Saxifraga umbrosa.*

Long Moss. See *Tillandsia.*

Long Purples. Shakespeare's name for *Orchis mascula.*

Long-tailed Ornithogalum. See *Ornithogalum.*

Loni'cera. Honeysuckle. Named after *Adam Lonicer*, a German botanist, who died in 1596. Nat. Ord. *Caprifoliaceæ.*

An extensive genus of climbing and upright shrubs, inhabiting both the Eastern and the Western Hemispheres, and much cultivated for the sake of ornament and the fragrance of their flowers. *L. sempervirens*, Trumpet Honeysuckle, a handsome climbing plant with sub-evergreen foliage and scarlet flowers, is a native species, common from New York to Florida, and is one of the most ornamental of the genus. *L. Halleana*, from Japan, one of the best of the climbing species, is a very rapid and free grower and blooms all summer, and *L. brachypoda aurea reticulata*, also from Japan, is prized for the beauty of its variegated foliage. *L. Tartarica*, Tartarian Honeysuckle, makes an ornamental shrub growing from six to eight feet high, of compact habit, and is profusely covered with flowers in May, and with orange-colored berries during summer. All the species are worthy of cultivation, and are readily increased by layers, cuttings, or from seed.

Looking-Glass Tree. A name given to *Heritiera littoralis.*

Loosestrife. See *Lysimachia.*

Lope'zia. Named in honor of *J. Lopez*, a Spanish botanist. Nat. Ord. *Onagracéæ.*

This is a genus of very handsome plants, distinguished by having two filaments, of which one bears an anther, and the other is petal-like and abortive. The seed vessel is four-valved, four-celled, and many seeded. The species are all natives of Mexico, bearing alternate, rarely opposite toothed leaves, and terminal racemes of small purple or red flowers. The biennials are green-house plants. The seeds of the annuals may be sown early, in a hot-bed or in the green-house, and transplanted when they have made a couple of leaves. They make very pretty standard when trained and pinched during the summer. On the approach of cold weather they should be brought into the green-house, where they will flower handsomely during the winter. *L. coronata*, the Mosquito plant introduced in 1804, is one of the best known species, and is easily increased by cuttings, or by seeds.

Lopha'nthus. Giant Hyssop. From *lophos*, a crest, and *anthos*, a flower; in allusion to the crested lip of the corolla. Nat. Ord. *Labiatæ*.

A genus of hardy plants, with the habit of *Nepeta*, natives of the northern United States and eastern Asia. They are all hardy perennials and grow well in any soil.

Lophi'ola. A diminutive of *lophos*, a crest; referring to the crested sepals. Nat. Ord. *Hæmodoraceæ*.

L. aurea, the only species, is a pretty, slender, hardy herbaceous plant with yellow flowers, densely woolly on the outside. It succeeds best in a peaty soil in a damp situation, and will grow and flower well in pots placed in pans of water; it is increased by division of the roots.

Lophospe'rmum. From *lophos*, a crest, and *sperma*, a seed; the seeds are furnished with a crested wing. Nat. Ord. *Scrophulariaceæ*.

Handsome green-house climbers, bearing numerous large rosy-purple flowers. They are also adapted for the open air, and flower well when trained against a wall or fence having a south aspect in the flower garden, delighting in an airy position, with rich earth to grow in. Seed is also produced plentifully in such positions; and when this is secured it saves the trouble of preserving plants through the winter, as, if it is sown early in March, in heat, and brought forward in pots, the young plants bloom quite as soon, and are generally more vigorous than those which have been kept from the preceding year. *L. scandens*, the species best known, is a native of Mexico, and was introduced in 1834.

Lop-seed. *Phryma leptostachya.*

Loquat or **Japan Medlar.** *Photinia* (*Eriobotrya*) *Japonica.*

Lorantha'ceæ. A natural order of evergreen shrubs with articulated branches, opposite, exstipulate, fleshy leaves, and hermaphrodite, or unisexual flowers, parasitic on the wood of other trees. Natives chiefly of the equinoxial regions of Asia and America, but a few are European and African. The fruit of this order contains bird-lime, a peculiar viscous, tenacious, and elastic substance. Mistletoe, *Viscum album*, was formerly worshipped by the Gauls; it was also held sacred by the Druids. The False Mistletoe, *Phoradendron flavescens*, is our native species, so much in

demand for holiday decorations. There are about thirteen genera, and five hundred species.

Lorate. Shaped like a thong or strap.

Lord Anson's Pea. *Lathyrus Magellanicus.*

Lords and Ladies. *Arum maculatum.*

Lo'reya. Named after *M. Lorey*, a French botanist and author of a "Flora of Burgundy," 1825. Nat. Ord. *Melastomaceæ*.

A small genus of ornamental trees, natives of northern Brazil and Guiana. *L. arborescens*, probably the only species yet introduced, has white flowers borne in cymose panicles, followed by a yellow edible berry, very like a medlar.

Lorope'talum. From *loron*, a thong, and *petalon*, a petal; referring to the long, thong-like petals. Nat. Ord. *Hamamelidaceæ*.

L. Chinense, the only species, is a very ornamental, free-flowering, hardy shrub, introduced from the Khasia Mountains, and China, in 1889. The flowers are white, disposed in terminal, crowded, six to eight flowered heads, It thrives in very rich, light soil, and is propagated by seeds or cuttings.

Lo'tus. From *Lotos* of Theophrastus; the true *Lotus* is *Zizyphus Lotus*. Nat. Ord. *Leguminosæ*.

An extensive genus of hardy annuals and herbaceous perennials, a few of which are ornamental and are sometimes cultivated in the borders. *L. corniculatus*, the Bird's-foot Trefoil, with its double-flowered form, are very handsome, dwarf, herbaceous plants with bright yellow flowers, well-suited for the rock garden. *L. Jacobæus*, a green-house plant, has flowers more nearly black than almost any known flower. It forms a neat bush and is easily increased by cuttings. Several of the species are forage plants.

Lotus, Egyptian. *Nymphea Lotus.*

Lousewort. One of the vulgar names of *Pedicularis Canadensis;* also called Wood Betony.

Lovage. *Ligusticum Scoticum.*

Love-Apple. A name formerly used for the *Tomato.*

Love Grass. A popular name for the genus *Eragrostis*, which see.

Love-in-a-Mist. *Nigella Damascena.*

Love-in-Idleness. *Viola tricolor.*

Love-lies-bleeding. See *Amaranthus caudatus.*

Love-Tree. A name sometimes given to the Judas-tree, *Cercis Siliquastrum.*

Lo'wea. Named after the *Rev. Mr. Lowe*, of the University of Cambridge. Nat. Ord. *Rosaceæ*.

L. berberidifolia, the only species, is a very singular and rare plant, native of northern Persia, and the Soongari desert, first described by Pallas, and by him referred to *Rosa*, in which genus it is now replaced. It is a neat little shrub, with yellow rose-like flowers, with a purple spot at the base of each petal, and simple obovate-cuneate serrated glaucous foliage. It agrees perfectly in the character of its flowers with *Rosa*, but differs strikingly in its foliage, and is seldom seen excepting in botanical collections.

Loxoco'ccus. From *loxos*, oblique, and *cokkos*, a berry; oblique-fruited. Nat. Ord. *Palmaceæ*.

L. rupicola, the only species, is an elegant stove-house Palm, introduced from Ceylon in 1878. It has spreading pinnate leaves, five to six feet long and three to four feet wide, bearing twelve to twenty pairs of spreading, somewhat recurved pinnules. It is still rare, and flowered for the first time in England, at Kew, in the spring of 1878.

Loxso'ma. From *loxos*, oblique, and *soma*, a body; the sporangia are girt by an incomplete ring. Nat. Ord. *Polypodiaceæ*.

L. Cunninghami, the only species, is a rare and beautiful Fern with decompound, coriaceous, long-stalked fronds, glaucous beneath; the sori are marginal, and have a short, broad, incomplete oblique ring, opening vertically. It is a native of New Zealand, and is of easy culture in a cool green-house.

Lucerne. See *Medicago*.

Lucid, Lucidus. Bright, shining.

Lucu'lia. *Luculi Swa* is the name given to the tree by the Nepalese. Nat. Ord. *Rubiaceæ*.

The two species forming the genus are among the finest winter-flowering plants we possess, as, when well grown, they become covered with large heads of lovely pink flowers. The plants should be placed when young in large pots, well drained, and filled with fibrous loam. The encouragement of a slight bottom heat and a rather elevated humid atmosphere will induce them to grow with vigor. It is best, in this early stage of their development, to stop the shoots once or twice, so as to form handsome specimens, and when the growth is nearly complete, they should be removed to the green-house to mature it and form their flowers, which are usually unfolded about the end of autumn, and with a little care may be preserved for a long period. *L. gratissima* is the best known species, and should find a place in every collection. It bears numerous cymes of reddish-pink flowers, which are very fragrant. There are few more beautiful plants than this when in bloom, and it should be more generally grown. It does well in a loamy soil, to which leaf mould and sand have been added. The species are natives of Nepal, and were introduced in 1823. Although it is possible to propagate Luculias from cuttings, it is by no means a successful method, unless the conditions under which the cuttings are placed regarding shade and temperature are just suitable to their requirements. Seedling plants grow fast, if properly attended to, but seldom bear flowers before the second or third year.

Lucu'ma. The Peruvian name of one the species. Nat. Ord. *Sapotaceæ*.

A large genus of lactescent trees and shrubs, natives of South America and the West Indies, a few being found in Australia and New Caledonia. *L. Mammosa*, the Marmalade Plum bears a very luscious, large oval or top-shaped fruit of a russet color. It was introduced in 1739, and is perhaps the only species in cultivation.

Luddema'nnia. Complimentary to *M. Luddemann*. Nat. Ord. *Orchidaceæ*.

L. Pescatorei, the only species, was formerly called *Cycnoches Pescatorei*. It is a native of South America. The flower spike is pendulous, very long, producing thirty to forty buff-

yellow flowers, brown inside, with the sepals and lip bright yellow. This species is increased by division, and should be grown in a basket in moss.

Lu'ffa. From *louff*, the Arabic name. Nat. Ord. *Cucurbitaceæ*.

A curious genus of ornamental gourds, natives of the warm regions of the globe, one being indigenous to America. The long green fruits when ripe, form inside a tough fibrous mass which, when the seeds and shell are removed, is used for bathing purposes, and for scouring cooking utensils. Hence, some of the species are called *Sponge Gourds*, and *Dish-rag Plants*.

Lu'hea. Named after *C. Vander Luke*, a German botanist, who wrote on the plants of the Cape of Good Hope. Nat. Ord. *Tiliaceæ*.

A small genus of handsome stove-house trees, allied to *Sparmannia*. *L. paniculata*, probably the only species yet introduced, has broad-ovate blunt leaves, unequally serrate and cordate at the base, and rosy-white flowers borne in leafy cymes at the tips of the branches. It is a very pretty plant, thriving well in a mixture of peat and loam, and is increased by cuttings of the nearly ripened wood, in sand. In Brazil the bark of this species is used in tanning leather.

Luna'ria. Moonwort, Honesty. From *luna*, the moon; referring to the shape of the seed-vessels. Nat. Ord. *Cruciferæ*.

Of this old garden plant there are but two species. One a hardy biennial. *L. biennis*, with blue and white, and white flowers, is interesting for its large oval, silvery seed pouches, which are quite ornamental, and are much used in bouquets of dried Ferns and Grasses, as they last a long time if kept dry. The seeds of this species should be sown in early summer for flowering the next year. It is a native of Germany, and is mentioned by the earliest botanical writers. The other species is a hardy herbaceous perennial of but little merit.

Lunate, Lunulate. Shaped like a half-moon; crescent-shaped.

Lungwort. See *Pulmonaria*.

Lupine. See *Lupinus*.

Lupi'nus. Lupine. From *lupus*, a wolf; devastates land as a wolf does the fold; literally, destroyer. Nat. Ord. *Leguminosæ*.

A genus of herbaceous annuals and perennials, which contains some of our most beautiful border flowers; yellow, blue, white and and pink Lupines are among the oldest of our cultivated border annuals. *L. nanus* is a beautiful little annual, with dark blue flowers, a native of California, and requires the usual treatment of Californian annuals. *L. mutabilis* and *L. Cruikshankii* are splendid plants, growing to the height of four or five feet, and branching like miniature trees. *L. polyphyllus* and its varieties are perennials, and they are splendid, vigorous-growing plants, with spikes of flowers from one foot to eighteen inches in length; *L. Nootkatensis* is a handsome dwarf perennial, and *L. arboreus*, when trained against a wall, will attain six feet in height, and in sheltered situations it will grow with equal vigor when trained as a bush tied to a stake; *L. latifolius* is a peren-

nial from California with very long spikes of blue flowers.

Lurid. Of a dingy brown; gray with orange.

Luxembu'rgia. In honor of the *Duke of Luxemburg*, under whose patronage M. Auguste de St. Hilaire commenced his botanical researches in Brazil. Nat. Ord. *Ochnaceæ*.

A genus of very showy, branched, very glabrous shrubs, bearing racemes of bright yellow flowers, blossoming during the summer months. They were first introduced from Brazil in 1840, and are propagated by cuttings of the half-ripened shoots.

Lu'zula. From the *Gramen Luzulæ* of Bauhin, Glow-worm Grass. Nat. Ord. *Juncaceæ*.

A genus of herbaceous perennial plants, of but little beauty, allied to the Rushes. They are common throughout the United States. From their being usually found in dry grounds and woods, they are commonly known by the name Woodrush.

Luzuria'ga. Named in honor of *Ignatio de Luzuriaga*, a Spanish botanist. Nat. Ord. *Liliaceæ*.

A small genus of green-house evergreen climbing shrubs, somewhat resembling the *Lapageria*, to which they are closely allied. The flowers are white, and are produced in great abundance. *L. radicans* is a very pretty Smilax-like plant with delicate leafage and neat white flowers. It is valuable for green-house culture, and general decorative purposes, and is propagated by cuttings. Syn. *Callixene*.

Lyca'ste. Named after a beautiful woman of Sicily. Nat. Ord. *Orchidaceæ*.

Very handsome epiphytes of the pseudo-bulbous class. They grow with freedom when potted in a well-drained mixture of turfy-peat and sphagnum, interspersed with which should be a considerable number of small pieces of charcoal or potsherds. Being natives of the Western Hemisphere, the species do not require a very high temperature, that of an ordinary green-house being fully sufficient; neither do they require so decided a rest as some other individuals of the order, but should be freely supplied with both water and air when growing. There are about twenty-five species in this genus, all natives of Central and South America. First introduced in 1828.

Ly'chnis. From *lychnos*, a lamp; referring to the brilliancy of the flowers of some of the species. Nat. Ord. *Caryophyllaceæ*.

A group of very ornamental herbaceous plants, quite hardy, and deserving a place in every garden. The species vary in character very much, some of them attaining a height of three or four feet, as in the case of the common Scarlet Lychnis (*L. Chalcedonica*), an old garden favorite from Russia, valuable because there are so few flowers of that color among our hardy herbaceous plants. There is a fine double variety of this species, also a double and single white. *L. Haageana*, a brilliant scarlet garden hybrid is also a very desirable variety. Many others are low-growing, not more than six inches in height. *L. grandiflora*, and *L. fulgens* are very handsome, and the very pretty *L. cœli-rosea* should be included in the list of annuals for every garden. *L. Sennæ* introduced from Japan in 1865, is beautifully striped white and crimson. The rosy-red and white varieties of the "German Catch-fly," *L. viscaria*, are most showy and desirable hardy herbaceous plants, more especially the form with double dark red flowers known as *L. v. splendens*, which is used with good effect as an edging plant, about Paris. They are all easily propagated by seed or by division.

Ly'cium. Box Thorn. From *lycion*, a name given by Dioscorides to a thorny shrub, and applied to the genus because of its containing some thorny shrubs. Nat. Ord. *Solanaceæ*.

There are numerous species in this genus, all hardy or green-house shrubs, mostly of little value as ornamental plants. *L. barbarum* is a plant of rapid growth, green foliage, and small lilac flowers. It is a climber, and is grown considerably in England to cover trellises and arbors. It is commonly called Tea Plant, and its leaves have been recommended as a substitute for tea. *L. Carolinianum*, a handsome shrub, is common in the swamps from Carolina to Florida. *L. vulgare*, a native of Europe, and an escape from our gardens into the hedge rows and waste places in some of the States, is popularly known as Matrimony Vine.

Lycope'rdon. From *lykos*, a wolf, and *perdo*, to explode backwards; some old writers believed that this fungus developed from the dung of the wolf. A genus of Fungi, known also as "Puff-balls." While white and fleshy they are edible. *L. giganteum*, a species that grows so large as to suffice for a meal for ten or twelve persons, is esteemed as an article of food by many people. When ripe, the dry mass of threads and spores is used as a styptic, and its fumes answer the purpose of chloroform.

Lycope'rsicum. Love Apple. Tomato. From *lykos*, a wolf, and *persicon*, a peach; in allusion to the fleshy fruit, and its inferiority compared with the peach. Nat. Ord. *Solanaceæ*.

A genus of three or four species of herbaceous, procumbent plants, natives of South America, chiefly Peru. The flowers are distinguished from those of the allied *Solanum*, by their stamens having the anthers connected together by a thin membrane which is prolonged upwards. The principal species is *L. esculentum*, for culture, etc., of which, see *Tomato*.

Lycopodia'ceæ. A natural order of Cryptogams, consisting of two very distinct groups, and comprising four genera and about 150 species. They are found in all climates, and are either terrestrial, or epiphytal perennials. The stems are branched and leafy throughout, and generally rigid. The leaves are imbricated all round the stem, and are arranged in from two to six ranks. *Lycopodium*, and *Selaginella*, are the best known examples.

Lycopo'dium. Club Moss. From *lykos*, a wolf, and *pous*, a foot; the roots having a resemblance to that animal's paw. Nat. Ord. *Lycopodiaceæ*.

An extensive genus of neat little evergreen herbaceous plants allied to *Selaginella*, but distinguished from that genus by their coniferous habit and the single form of the capsules. *L. dendroideum*, remarkable for its tree-like appearance, is largely employed in

making "Christmas greens," and in bouquet work by the florists. It is very common in swampy places, particularly in New England. The spores of the common Club Moss, *L. clavatum*, are very inflammable, and are used on the stage to produce artificial lightning. Many species formerly placed under this genus are now removed to *Selaginella*, which see.

Lyco'psis. A genus of *Boraginaceæ*, differing very slightly from *Anchusa*, with which genus it is now united by many botanists.

Lyco'ris. The name of a woman in Roman history. Nat. Ord. *Amaryllidaceæ*.

A small genus of hardy bulbs from China, producing an umbel of several showy flowers on a slender scape from twelve to eighteen inches high, the color being yellow or light straw, and pink. They are allied to the *Vallota*, and require the same treatment. Introduced in 1758.

Lygodi'ctyon. From *Lygodium* and *dictyon*, a net; its net-like veins distinguishing it from *Lygodium*. Nat. Ord. *Polypodiaceæ*.

L. Forsteri, a climbing Fern, common in the South Sea Islands, constitutes this genus. It is almost identical with the genus *Lygodium*, and is also known as *Hydroglossum*. Syn. *Lygodium reticulatum*.

Lygo'dium. Climbing Fern. Japan Fern. From *lygodes*, flexible; in allusion to the twining habit of the plants. Nat. Ord. *Polypodiaceæ*.

A genus of climbing Ferns, mostly of an ornamental character, and widely dispersed over the warmer parts of the earth. *L. scandens*, introduced from Japan in 1830, is a favorite in the green-house, and is well adapted to house culture, as it requires but little light, and is not injured by "furnace heat" or gas, so fatal to most plants introduced into the drawing-room. It is moreover a rapid grower. With a little management this plant can be made to complete its growth during the summer, and it may then be placed in a cool room in the house or in the hall, where it will remain an object of beauty till spring, when it may be cut down for a new growth. There is reason to suppose that *L. scandens* is hardy, even in the vicinity of New York. It is increased by spores or root division. *L. palmatum*, the only native species, is found in Connecticut, Massachusetts, Virginia, and Kentucky. It is pressed and sold in large quantities for parlor decoration, and is known in the trade as the *Hartford Fern*.

Lyo'nia. Named in honor of *John Lyon*, a collector of North American plants. Nat. Ord. *Ericaceæ*.

This genus formerly included under *Andromeda*, comprises about eight species of hardy or green-house trees or shrubs. They are natives of North America, Mexico, Jamaica, and Cuba. *L. ligustrina*, the American representative of the genus is found in low thickets, and swamps, from New England to Virginia and southwards.

Lype'ria. From *lyperos*, sad or sorrowful; alluding to the dull, heavy color of the flowers. Nat. Ord. *Scrophulariaceæ*. A genus of herbs or low-branching under-shrubs, all natives of southern Africa. They are of little

ornamental value, and are but little cultivated. The flowers of *L. crocea* have been imported under the name of African Saffron.

Lyrate. A lyrate leaf is pinnatifid, with the upper lobes much larger than the lower, and ending in one still larger.

Lysilo'ma. A genus of *Leguminosæ*, of the tribe *Mimoseæ*, formerly combined with *Acacia*, from which, however, it is botanically different. It comprises eight or ten species, all natives of tropical America, and "is of considerable importance in an economic point of view, on account of one of its species yielding the valuable hard timber known as Sabicù, Savacù, or Savicò wood, the origin of which was long unknown, but which has now been ascertained to be the product of a species of this genus, to which the name of Sabicù has been given. Sabicù timber is imported in considerable quantities from Cuba, where only, the tree is known to exist. It is a dark colored wood, very heavy, excessively hard, and extremely durable, the two latter qualities rendering it of great value to the ship-builder, by whom it is much esteemed. On account of its hardness, it was selected for the stairs of the building for the Great Exhibition in 1851, and notwithstanding the immense number of people who passed up and down, the stairs were found, at the close of the Exhibition, to be scarcely at all the worse for wear.

Lysima'chia. Loosestrife. From *lysis*, dissolving, and *mache*, strife; supposed soothing qualities. Nat. Ord. *Primulaceæ*.

Hardy herbaceous perennials of the easiest culture. *L. nummularia*, Moneywort, is a well-known evergreen trailer, a native of Great Britain. If kept in a pot of moist soil and suspended, it will produce shoots of two or three feet in length, which hang down on every side. *L. nummularia aurea* is a golden-leaved variety of great beauty, now much used as a drooping plant. *L. verticillata* is an upright-growing plant, with an abundance of showy yellow flowers suitable for a large border. *L. clethroides*, a Japanese species is a graceful and beautiful plant, from two to three feet high, bearing long dense nodding spikes of white blossoms, the leaves displaying brilliant tints in autumn. They are all readily increased by cuttings, seeds or division.

Lysiono'tus. From *lysis*, loosening, and *notos*, the back; in reference to the capsule opening with elasticity from the dorsal suture. Nat. Ord. *Gesneraceæ*.

A genus containing a few species of glabrous or pubescent plants, natives of the Himalayas. *L. ternifolia* (Syn. *L. serrata*) has compound umbels of beautiful pale lavender-colored flowers, with veins of a deeper color, shaded to soft gray. It was introduced in 1882.

Lythra'ceæ. A natural order of herbs or shrubs, often with square branches, and usually opposite, entire, exstipulate leaves. The plants are chiefly tropical, but some are found in Europe and North America. They have astringent qualities. *Lawsonia alba* yields the Henna of the Arabs. There are forty genera, and upwards of 300 species; *Cuphea*, *Grislea*, and *Lythrum* are good examples of the order.

LUFFA (SPONGE GOURD).

LYCHNIS HAAGEANA.

LYCASTE SKINNERI.

LINARIA CYMBALLARIA VARIEGATA.

LUNARIA BIENNIS (HONESTY).

LUPINUS.

MALCOLMIA (VIRGINIAN STOCK).

LYGODIUM.

LUCULIA.

MAHERNIA ODORATA.

MARANTA ZEBRINA.

LYCHNIS CHALCEDONICA.

MAGNOLIA.

MALOPE GRANDIFLORA.

Ly'thrum. Loosestrife. From *lythron*, black blood; the prevailing purple color of the flowers. Nat. Ord. *Lythraceæ*.

A genus of hardy annuals and herbaceous perennials. Several species of the latter are common in marshes and wet places throughout the Middle and Western States. The flowers produced in the gardens are finer than those growing wild. They flower freely in the autumn months and are propagated by division. *L. Græfferi* is a very ornamental trailing plant, well adapted for cultivating in hanging pans or baskets for summer decoration. It is readily increased by cuttings.

M.

Maa'ckia Amurensis. A synonym of *Cladrastis Amurensis*.

Ma'ba. Its native name in the Tonga Islands. Nat. Ord. *Ebenaceæ*.

A genus of nearly twenty species, dispersed over tropical Africa and Asia, the Pacific Islands, and Australia. The Ebony Wood of Cochin China is believed to be the produce of a tree of this genus. Only one or two species are in cultivation.

Macada'mia. Named after *John McAdam, M.D.*, of Victoria. Nat. Ord. *Proteaceæ*.

M. ternifolia is remarkable for its fruit, which contains a kernel of a remarkably rich and agreeable flavor, resembling, but much superior to, the Filbert. It is the only species yet in cultivation, and was introduced in 1869.

Mace. The envelope which surrounds Nutmegs. See *Myristica*.

Machæranthe'ra. From *machairos*, a sickle, and *anthera*, an anther; alluding to their peculiar form. Nat. Ord. *Compositæ*.

A genus of biennial and annual plants, natives of North America, now classed with *Aster*. *M. canescens*, and *M. tanacetifolia* are in cultivation but are scarcely worth growing.

Macka'ya. Named after *Dr. J. F. Mackay*, author of the "Flora Hibernica." Nat. Ord. *Acanthaceæ*.

M. bella, the only species, is a lovely shrubby green-house plant, a native of the rocky bed of the Tongat river, Natal, and is described by its discoverer, Mr. J. Sanderson, as forming a beautiful object, being one mass of most delicate, pendant, pale lilac, campanulate flowers, which grow in racemes four to six inches long. It grows very freely, but requires special treatment to induce it to flower profusely. The essential points are the encouragement of a free growth during summer and the allowance of a season of rest in winter, during which time no water should be applied to the roots or overhead. The plant is nearly or quite deciduous, and the racemes are produced from the points of nearly all well ripened shoots. It was introduced in 1869, and is propagated by cuttings in summer. This genus is included by Bentham and Hooker under *Asystasia*.

Maclea'nia. Named after *John Maclean*, of Lima, a British merchant, and a distinguished patron of botany. A genus of Peruvian shrubs of the Nat. Ord. *Vacciniaceæ*, comprising about a dozen species of ornamental green-house shrubs, with alternate leaves and axillary flower stalks, terminated by a single reddish or yellow flower of great beauty. Cuttings will readily root in sand or soil. First introduced in 1842.

Macleay'a. A synonym for *Bocconia*, which see.

Maclu'ra. Osage Orange. Named after *William Maclure*, a North American geologist. Nat. Ord. *Urticaceæ*.

A genus of handsome, low-growing trees, generally attaining the height of thirty feet. There are but three species included in the genus, two of which are common in the West Indies, and not hardy here, excepting in the extreme Southern States. *M. aurantiaca*, the Osage Orange, is a native of the south-western States, and forms a spreading tree from thirty to sixty feet high, but is easily kept dwarf by cutting back, and is extensively used as a hedge plant in the Western States, for which purpose its rapid growth, together with its strong spines, renders it suitable. The wood is bright yellow and very elastic. It is called Bow-wood, from its being used by the Indians for making bows. Young plants are grown from seed, which, if sown in good soil, will make very strong plants for the hedge-rows in two years. Many prefer setting them one year from seed. This species is hardy in the vicinity of New York, and is used for hedges and on the lawn. *M. tricuspidata* (Syn. *Cudrania triloba*) is an ornamental deciduous tree, remarkable for the difference of the appearance and shape of its leaves in its young and adult state. It forms a good hedge plant, and in China, whence it was introduced in 1872, the leaves are used for feeding silkworms, and the wood yields a yellow dye. *M. tinctoria* is a synonym for *Chlorophora tinctoria*, which see.

Maco'des. From *makos*, length; in reference to the shape of the labellum. A very beautiful Orchid from Java, its leaves beautifully marked with netted golden veins, closely allied to *Anæctochilus*.

Macrade'nia lutescens, is a little Trinidad Orchid forming a genus allied to *Oncidium*.

MAC

Macrome'ria. From *makros*, large, and *meris*, a part; the flowers of this genus are the largest in the whole family. A genus of *Borraginaceæ*, comprising about eight species of half-hardy perennial herbs, natives of Mexico, Columbia and Peru, closely allied to *Lithospermum*. *M. exserta* with yellow flowers, probably the only species yet in cultivation, was introduced from Mexico in 1846.

Macronemum. From *Makros*, long, and *Kneme*, a leg; in reference to the long flower-stalks. Nat. Ord. *Rubiaceæ*.

A genus of tropical trees and shrubs, natives of tropical America and the West Indies. *M. Jamaicense*, the only species yet introduced, has greenish-white, sweet-scented flowers, with oblong-oval, polished leaves. It was introduced from Jamaica in 1806.

Macropi'per. The word signifies large pepper. Nat. Ord. *Piperaceæ*.

M. methysticum formerly called *Piper methysticum*, furnishes the root called Ava by the Polynesians. It has narcotic properties, and is employed medicinally, but is chiefly remarkable for the value attached to it as a narcotic and stimulant beverage, of which the natives partake before they commence any important business or religious rites. It is used by chewing the root and extracting the juice, and has a calming rather than an intoxicating effect. Europeans distill the juice, and use it as a beverage in moderate quantities. By the more respectable of the population it is considered a filthy preparation, and is not indulged in.

Macrorhy'nchus. From *markos*, long, and *rhynchos*, a snout. Nat. Ord. *Compositæ*.

A genus of annual and perennial plants, natives of North and South America, closely allied to the Dandelion. *M. grandiflorus*, a Californian perennial species has very handsome, large, yellow flower-heads, but it is rarely found in cultivation.

Macro'stylis. From *makros*, long, and *stylos*, a style; style very long. Nat. Ord. *Rutaceæ*.

A genus of pretty, green-house evergreen shrubs, indigenous to South Africa and nearly allied to *Barosma*, and *Diosma*. The reddish flowers are arranged in a kind of umbel on the ends of the branches. The Orchidaceous genus of this name is synonymous with *Corymbis*.

Macroto'mia. From *makros*, long, and *tome*, a cutting; in allusion to the long division of the calyx. Nat. Ord. *Boraginaceæ*.

A genus of erect, hispid, perennial herbs, natives of the Himalayas and the East Indies. *M. Benthami*, the only species yet introduced, grows from one to two feet high, producing a thyrse eight to twelve inches long, of dark maroon-purple flowers. It was introduced from the Western Himalayas in 1884, and is perfectly hardy.

Macroza'mia. From *makros*, long, and *Zamia*. Nat. Ord. *Cycadaceæ*.

This interesting genus is formed from a few species of Zamia, and contains some of the most beautiful plants under cultivation for decorative purposes. The leaves and trunk are similar to Cycas except that the pinnæ have no midrib and are striate, with parallel veins. *M. plumosa*, plume-like, is one of the most beautiful and is remarkable for its distinct and elegant character. *M corallipes* is another rare species. There are several species under cultivation, all natives of Australia. For culture see *Zamia*.

MAG

Maculate, Maculose. Spotted or blotched.

Madder. The root of *Rubia tinctoria*, which see.

Maderia Nut. See *Juglans*.

Maderia Vine. See *Boussingaultia baselloides*.

Ma'dia. *Madi* is the name of the original species (*M. sativa*) in Chili. Nat. Ord. *Compositæ*.

This is a small genus of coarse-growing, hardy annuals, with bright yellow and white flowers, natives of Chili and northern California. They grow freely in almost any soil or situation. The seeds should be sown in the spring as soon as the ground is in readiness and the weather sufficiently warm; introduced in 1831. Syn. *Madaria*.

Madonna Lily. *Lilium candidum*.

Madwort. The genus *Alyssum*.

Magic Tree, Peruvian. *Cantua buxifolia*.

Magno'lia. Named after *Pierre Magnol*, Professor of Medicine at Montpellier, 1638–1715. Nat. Ord. *Magnoliaceæ*.

A magnificent genus of ornamental trees and shrubs, natives of the United States, China, India, and Japan. It is composed of evergreen and deciduous hardy and half-hardy trees and shrubs. The flowers are white, purple, or greenish white, and are remarkable for their fragrance. *M. acuminata* (Cucumber Tree) grows from thirty to fifty feet high, and is common in moist woods from New York to Ohio and southward. *M. glauca* (Small or Laurel Magnolia, Sweet Bay) is a low growing deciduous tree, in some localities called Swamp Sassafras. It is also known by the name of Beaver Tree, because the roots are eaten by beavers, which animals also make use of the wood in constructing their huts or nests. This species is common in swamps in New Jersey and southward. The flowers are single, produced on the ends of the branches, greenish white, and delightfully fragrant. They are collected and sold in the markets and streets of New York in large quantities. *M. cordata* is the Yellow Cucumber Tree of Georgia. *M. grandiflora* (Great Laurel) is justly entitled to its specific name, as it is one of the most noble and beautiful of American evergreen trees, remarkable for the majesty of its form, the magnificence of its foliage, and the beauty of its flowers. This is a large tree, growing from sixty to one hundred feet high; the foliage is thick, brilliant on the upper surface, and rusty colored underneath; the flowers are pure white, six to eight inches across, and very fragrant. It is a native of the Carolinas and westward, but not hardy north of Washington. There is one specimen in Philadelphia, well protected, that blooms annually. *M. macrophylla* is a comparatively rare species being only occasionally met in the woods from Florida to Tennessee. It rarely attains a height of sixty feet. It is a deciduous tree of perfect form, with leaves from one and a half to three feet long, clustered at the sum-

mit of the branches. The flowers are pure white, with a purple spot at the base of the petals, and are from eight to twelve inches in width, and deliciously fragrant. This species is not considered sufficiently hardy to withstand the severity of our winters. It is to be regretted that it has such a reputation, as it is in a great measure unjust. It might not succeed in the more exposed situations, but there is scarcely a fine suburban place around New York that has not some sheltered, cosy corner in which this noble tree would not delight to grow. There is upon the Manice estate at Queens, Long Island, a tree of this species that was planted more than fifty years ago, and is now fifty or more feet high, with a boll a foot in diameter. There is upon this tree every year hundreds of flowers, and it is no less conspicuous in autumn, with its large heads of bright scarlet fruit. It also succeeds well up the Hudson River. Young trees are easily produced from seed. *M. hypoleuca*, a Japanese species of great beauty, has leaves a foot long, glaucous beneath, and sometimes purple tinted above, with a red midrib and leaf stem. The flowers are large, creamy-white, delightfully fragrant, and bloom in June after the foliage is developed. *M stellata*, known as Hall's Japan Magnolia, is another very desirable species. Its form is low and shrub-like, flowers pure white and delicately fragrant. It blooms earlier than any other Magnolia, and is very showy. *M. Campbellii*, introduced from the Himalayas in 1858, the flowers of which are pale rose inside, crimson outside, and slightly fragrant, is an exceedingly handsome deciduous species, probably not entirely hardy in the Northern States. *M. conspicua*, or *M. Yulan*, is a native of China, where it attains a height of forty or fifty feet. It is perfectly hardy in this latitude, and remarkable for the great number of white flowers produced in spring, before the leaves are developed. *M. purpurea* and *M. Soulangeana*, are deciduous, like the former, and are in all respects similar, except that the flowers are purple outside and white within. These two species contrast finely with M. Conspicua, when planted together upon the lawn. *M. fuscata*, a green-house evergreen from China, is a low-growing shrub, with small glossy leaves, and dull purple flowers of exquisite fragrance. There are many other species and varieties, but those described are the best representatives.

Magnolia'ceæ. A natural order of trees or shrubs, with alternate, leathery, sometimes dotted leaves, and showy, often fragrant flowers, natives of tropical and eastern Asia, and North America. They possess bitter, tonic, and aromatic qualities. There are about a dozen genera and upward of seventy species. Examples: *Illicium*, *Drimys*, and *Liriodendron*.

Maguey-fibre Plant. Various species of *Agave*.

Mahe'rnia. An anagram of *Hermannia*, an allied genus. Nat. Ord. *Sterculiaceæ*.

A genus of neat little green-house shrubs, growing about two feet high, and remarkable for the profusion of their fragrant yellow, or red and yellow flowers. The yellow *M. odorata*, is the best known. They are easily grown in the green-house with ordinary treatment. All the species are from the Cape of Good Hope, were introduced early in the present century, and are easily increased by cuttings of the young shoots.

Mahogany-Tree. *Swietenia Mahagoni.*

Maho'nia. In honor of *Bernard McMahon*, an American botanist. Nat. Ord. *Berberidaceæ*.

A genus of handsome hardy and half-hardy evergreen shrubs, most of which are now included in the genus *Berberis*. *M. Bealii* has large leaves of a yellowish green tint, composed of broad spiny leaflets of irregular outline, and terminal clusters of yellow flowers, produced in winter or early spring, a native of Japan, *B. Japonica* is probably a variety of the same species. They are of comparatively recent introduction (1845) and are so distinct from everything else that one or the other of the varieties should be found in every collection of choice shrubs. They require a slight protection in winter in the Northern States. By some this genus is placed under *Berberis*.

Maiden Hair Fern. See *Adiantum*.

Maiden Hairtree. See *Salisburia*.

Maiden Pink. *Dianthus deltoides*.

Maize. See *Zea*.

Malabai'la. Named after *Count Malabaila von Canal*, once director of the Botanic Gardens at Prague. Nat. Ord. *Umbelliferæ*.

A genus of hardy perennial, often glabrous herbs, similar in habit to *Peucedanum*, but with broader leaves; natives of eastern Africa, western Asia and south-eastern Europe. *M. Opoponax* (Syn. *Pastinaca Opoponax*) is sometimes cultivated as a decorative plant for the sub-tropical garden. It grows about six feet in height and is easily increased by seeds sown in the open ground in spring.

Malabar-Leaf. A common name for *Cinnamomum Malabathrum*.

Malabar Nightshade. See *Basella*.

Malacoca'rpus. From *malakos*, soft, and *karpos*, a fruit; alluding to the juicy fruits. Nat. Ord. *Cactaceæ*.

This genus, now included by Bentham and Hooker under *Echinocactus*, is composed of the smooth-fruited species of that genus.

Malacoid. Having a mucilaginous texture.

Mala'xis. From *malaxis*, tenderness; in allusion to the nature of the species. Nat. Ord. *Orchidaceæ*.

A genus of curious and interesting terrestrial Orchids, growing naturally in spongy boggy places. They are mainly of botanical interest.

Malay, or Rose Apple. A name applied to the fruit of *Eugenia Jambos*, and some other species of *Eugenia*.

Malco'lmia. Named after *W. Malcolm*, a celebrated London nurseryman. Nat. Ord. *Cruciferæ*.

A genus of hardy plants, mostly annuals, chiefly natives of the south of Europe, producing white or purple flowers disposed in racemes. Most of the species are but little grown. *M. maritima* is the well-known Virginian Stock of our gardens. They all grow from seed sown in spring.

Male Fern. A common name for *Aspidium Filix-mas.*

Mallow. See *Malva.*

Ma'lope. From *malos*, soft or tender: referring to the texture of the leaves. Nat. Ord. *Malvaceæ.*

Annual plants with very handsome flowers. *M. trifida*, of which there are two kinds, one with crimson and the other with white flowers, is rather dwarf; but *M. grandiflora* will grow four or five feet high in a good soil and an open situation, bearing very large and showy, brilliant crimson flowers. All the kinds are quite hardy, and only require sowing in April or May in the open border, and thinning out or transplanting, when the young plants are three or four inches high. Natives of north Africa; introduced in 1808.

Malorti'ea. Named in honor of *E. Von Malortie* of Hanover. Nat. Ord. *Palmaceæ.*

A small genus of slender, dwarf, elegant palms, admirably adapted for cultivation in the dwelling-house or for table decoration. They are characterized by their slender reed-like stems and simple branching spikes of unisexual flowers. *M. gracilis* and *M. simplex*, two species from Guatemala, are considerably grown as ornamental plants, and were formerly referred to *Chamærops*. They are of easy culture, requiring a rich light soil and plenty of water.

Malpi'ghia. Named after *Marcello Malpighi*, an Italian naturalist. Nat. Ord. *Malpigiaceæ.*

A genus containing about twenty species of small trees or shrubs, natives, principally, of tropical America. Flowers pink or white, fasciculate or corymbose, rarely solitary; drupe fleshy. The fruits of *M. glabra*, and *M. urens*, are eaten in the West Indies, those of the former being called Barbadoes Cherry. Propagated by cuttings.

Malpigia'ceæ. A natural order of trees or shrubs, sometimes climbing, with simple, generally opposite leaves, and yellow or red flowers. They are natives chiefly of tropical countries, and a great number of them are found in South America. There are about forty-nine genera and 600 species. Good examples are *Malpigia Bannisteria*, and *Gaudichaudia.*

Ma'lus. *Pyrus Malus. The Apple*, which see.

Ma'lva. Mallow. From *malacho*, to soften; referring to their emollient qualities. Nat. Ord. *Malvaceæ.*

This is a group of plants remarkable for their large, showy flowers; but the coarseness of the leaves and loose manner of growing deprive the genus of much of the interest it would otherwise have. The genus consists of tender, half-hardy, and hardy perennials and annuals, all of the easiest culture, according to their respective kinds. *M. moschata*, the Musk-Mallow, derives its name from the peculiar musky odor given off by all parts of the plant when kept in a confined situation, particularly in dry weather; but it is seldom powerful enough to be perceived in the open air. This species is a hardy herbaceous perennial, common in waste places in Great Britain. *M. rotundifolia* has become naturalized until it is quite a nuisance in our gardens and yards.

Malva'ceæ. A natural order of herbaceous plants, trees, or shrubs, generally distributed over the world. They are mucilaginous and demulcent, and yield fibres. *Althæa officinalis* (the Marsh-Mallow) yields mucilage, *Gossipium* furnishes various kinds of cotton, *Hibiscus cannabinus* supplies Indian hemp, *Paritium elatum* gives Cuba bast. There are nearly fifty genera, including *Malva, Lavatera, Hibiscus*, and *Sida*, and upwards of 1,000 species.

Malva'strum. Name altered from *Malva.* Nat. Ord. *Malvaceæ.*

A genus containing about sixty species of green-house or hardy herbs, natives of the warmer parts of North and South America. *M. Munroanum* is a dwarf hardy plant, with rather small orange-red flowers, introduced from Columbia in 1828, under the name of *Malva Munroanum. M. lateritium*, an introduction from Buenos Ayres, has handsome brick-red flowers, on long peduncles. The perennial sorts are increased by seeds or cuttings; the annuals by seeds only.

Malvavi'scus. From *malva*, mallow, and *viscus*, glue; referring to the mucilage with which it abounds. Nat. Ord. *Malvaceæ.*

A genus of evergreen shrubs, with entire or slightly lobed leaves, and crimson flowers, natives of tropical America and Mexico. *M. arboreus* (Syn. *Achania malvaviscus*) is a well-known green-house shrub, with bright scarlet flowers; free-flowering, and desirable. Propagated by cuttings of the side shoots.

Ma'mmea. Mammee Tree. *Mamey* is the native name. Nat. Ord. *Clusiaceæ.*

M. Americana, a native of the West Indies, produces the Mammee Apple, or South American Apricot, which is very much valued in tropical countries. It often attains the size of a child's head, and is of a yellow color. The outer rind and the pulp which immediately surrounds the seeds are very bitter, but the intermediate is sweet and aromatic, and is eaten cut into slices and steeped in wine, or made into preserves of various kinds.

Mammee Apple. See *Mammea.*

Mammilla'ria. From *mamma*, the nipple; in allusion to the small tubercles. Nat. Ord. *Cactaceæ.*

Succulent plants, with almost globular stems covered with prickles, but without leaves, the flowers growing out of the stem without any stalk. These plants are natives of the high table-land of Mexico, where they are subject to very few variations of temperature, and they should, therefore, be kept in green-house heat all the year. They are also found in Texas and Colorado. In their native country they grow in rich loam, and therefore require a better soil than the different kinds of Cereus and Echinocactus, which grow among calcareous rocks, in the mould formed by the deposition of vegetable matter in the fissures. By attending to these particulars the Mammillarias may be easily grown in any situation where they can be kept free from frost. When kept in a room, they should be allowed as much air as possible, and the dust which lodges among their spines should be frequently blown off with a small pair of bellows or the breath. There are about 100 species in this genus, nearly all confined to Mexico and South America. They were first introduced from Peru in 1799, and are propagated by offsets or by seeds.

MAM

Mammoth Trees of California. See *Sequoia.*

Manchineel Tree. The virulently poisonous *Hippomane Mancinella.*

Mandarin Orange. *Citrus nobilis.*

Mandevi'lla. Named after *H. J. Mandeville*, an English minister at Buenos Ayres, and a botanical collector. Nat. Ord. *Apocynaceæ.*

M. suaveolens, the only species yet introduced, is a native of South America, and is a desirable climber for the green-house, as it is a rapid grower, and produces clusters of very sweet-scented white flowers during the summer. It should be allowed to rest during winter. It is propagated by cuttings of the small, stiff side shoots, taken off close to the old wood. Introduced in 1837.

Mandio'cco. A synonym of *Manihot*, which see.

Mandrago'ra. Mandrake. From *mandra*, an oxstall, and *agauros*, cruel; alluding to its poisonous effects when accidentally given to cattle with their fodder. Nat. Ord. *Solanaceæ.*

The species are natives of southern Europe and the East, and have very short stems, with a thick, fleshy, often forked root, from the summit of which the entire ovate lance-shaped leaves appear. The early writers attribute the most wonderful and poisonous properties to this plant; it was both used to save and to destroy life. Shakespeare alludes to it as follows: "Or have we eaten of the insane root that takes the reason prisoner?" In the olden time this root was said to be employed as an anæsthetic, in the same way that chloroform now is. While its poisonous properties are yet acknowledged and dreaded, its medical properties are no longer esteemed.

Mandrake. See *Podophyllum* and *Mandragora.*

Mane'ttia. In honor of *Xavier Manetti*, prefect of the Botanic Garden at Florence, and author of "Regnum Vegetabile," 1756. Nat. Ord. *Rubiaceæ.*

An elegant family of green-house climbers, suitable for training over a wire trellis attached to the pots in which the plants grow. The species delight in a moderately warm and moist atmosphere when they are growing, and in the case of having tuberous roots, like *M. cordifolia*, are all the better for a decided drying through the winter. The other species, from having only fibrous roots, will not bear a reduction to the same extent. *M. bicolor* for winter-flowering should be grown freely through the summer, and afterward be placed in a dry, warm position to induce it to flower freely, and to preserve its foliage from mildew, to which it is very subject. The flowers of this species are yellow and crimson; those of the others are scarlet, except *M. Lygistum*, a native of Cuba, which has pink blossoms. All the species do well here planted out during summer, keeping up a continuous bloom, and are propagated by cuttings, either of the roots or shoots. Introduced from South America in 1806.

Mangel Wurzel. *Beta vulgaris macrorhiza.* A cultivated variety of Beet, largely grown as food for cattle.

Mangi'fera. Mango Tree. From *mango*, the Hindoo name of the fruit, and *fero*, to bear. Nat. Ord. *Anacardiaceæ.*

MAN

M. Indica grows abundantly in India, where numerous varieties are cultivated. It is also grown in Brazil and the Mauritius for the fruit, which is highly esteemed for its grateful acidity and sweet perfume. In the tropics it is the principal fruit eaten. The tree grows about twenty feet high, and the fruit is produced in terminal clusters.

Mangle'sia. Named after *Captain Mangles*, and his brother, *Robert Mangles*, distinguished patrons of botany. Nat. Ord. *Proteaceæ.*

A genus of ornamental green-house shrubs from Swan River, with very small flowers of little beauty. It is grown only for its beautiful foliage, and is now included under *Grevillea* by some botanists.

Mangosteen. See *Garcinia.*

Mango Tree. See *Mangifera.*

Mangrove. See *Rhizophora.*

Manica'ria. From *manica*, a glove; referring to the spathe rolled around the inflorescence or flower stem. Nat. Ord. *Palmaceæ.*

A noble genus of Palms inhabiting the tidal swamps of the Lower Amazon River. *M. saccifera*, the only species yet introduced, has immense leaves, unlike any others of the order, which are more or less pinnated or fan-shaped; these, on the contrary, are entire, frequently growing thirty feet long and from three to four in width; and being of a stiff habit, stand erect upon the summit of the stout, crooked stem, which usually attains the height of fifteen or twenty feet. The Indians call the Palm *Bussu*, and its immense leaves are invaluable to them for thatching their huts. The fibrous spathes are also converted into useful bags and caps by simply cutting round them near the bottom, and pulling them off entire, and afterward stretching them open as wide as possible without tearing; they also supply a coarse, but strong kind of cloth. On account of its immense size this interesting species is rarely met in collections. Propagated by seeds.

Mani'hot. The Brazilian name of this genus. Nat. Ord. *Euphorbiaceæ* (Syn. *Mandiocca*).

A genus comprising about eighty species of tall herbs, or evergreen shrubs, mostly natives of Brazil, a few being dispersed through the warm regions as far as Mexico. *M. Aipi*, the Sweet Cassava, deserves special notice as being one of the recent additions to the food plants of this country. It is closely related to the *Ricinus* or Castor-oil Bean which it resembles in general appearance. In the southern portion of the United States and more particularly in Florida, there are large areas admirably adapted to the growth of this plant as an article of home consumption, while in time its manufacture into starch, tapioca, and glucose, ought to become a leading industry. It has also created much interest as food for stock being greatly relished by cattle, horses, hogs, and poultry. The tubers often three or four feet in length may be dug at any season, only however, as wanted for use, as they decay soon after being exposed to the air. It is propagated from cuttings of the larger stems, which before frost, are cut, laid in piles and covered with earth. When ready for planting in January, February, or March, the stems are cut into pieces about six

inches long and planted four or five feet apart each way, and three or four inches deep. The crop receives shallow culture until sufficiently grown to hold its own against weeds. It may be left to grow for two years with advantage, thus requiring a minimum of culture. It is calculated that from ten to fifty tons of roots of one year's growth ought to be obtained from an acre of land according to its quality. Besides those already mentioned it can be put to a variety of uses, the Florida house-wives having used it for making bread, puddings, custards, fritters, jellies, etc., and also as a vegetable in all the ways in which potatoes are used. The root of *M. utilissima* (Syn. *Janipha manihot*) is virulently poisonous and bitter. The poisonous juice is however expressed in the process of manufacture and when allowed to settle, deposits what is known as Brazilian Arrowroot or Tapioca. It is from this that the Tapioca of Commerce is prepared.

Manna. See *Alhagi, Ornus, Tamarix* and *Rocella.*

Manna Ash. See *Ornus.*

Man-of-the-Earth. See *Ipomœa.*

Man Orchis, or Green Man Orchis. A name usually given to *Aceras anthropophora,* which see.

Manti'sia. Opera Girls. Named after the insect *Mantis,* to which the flowers have been compared. Nat. Ord. *Scitamineæ.*

Hot house herbaceous evergreens from the East Indies. One of the species has long been grown in some countries for the singularity and beauty of its flowers, which present some appearance of a ballet dancer, hence the popular name, *Dancing Girls,* applied to the plant. The filament and anther, with its wing-like margins, represent the head and neck of the lady, the long inner segments of the corolla represent the arms, while the labellum corresponds to the dress. The flowers are purple and yellow; they were introduced in 1808, and are propagated by root division.

Manu'lea. From *manus,* the hand; in allusion to the divisions of the corolla. Nat. Ord. *Scrophulariaceæ.*

A genus of about twenty-five species of green-house plants; natives of southern Africa. They are handsome plants with golden-yellow, or orange-colored flowers, of easy cultivation, though rarely found except in large collections. *M. rubra,* yellow, and *M. tomentosa,* orange, are the best known species, and are easily increased by cuttings or by seed.

Manures. There are few soils or conditions under which crops can be grown successfully without the use of manures, consequently, their aid is of the utmost importance to every operator in the soil whether professional or amateur. According to the experiments which have been made—all substances entering into the composition of vegetable manure or food, should be in a state of fluidity, or in the form of gas. The great object therefore in the application of manure should be to make it afford as much soluble matter as is possible to the roots of the plant, and in so gradual a manner that it may be entirely consumed in producing the required crop. Every substance, organic or inorganic, that adds directly or indirectly to the fertility of the soil may therefore be considered a manure. The comparative value of the manures must be regulated by the cost. If rotted stable manure whether from horses or cows, can be delivered on the grounds at $3 per ton, it is about as valuable for fertilizing purposes, as Peruvian Guano at $65 per ton, or pure bone dust at $40 per ton. It is better than any of these or any other concentrated fertilizer, from the fact of its mechanical action on the land—that is, its effects from its light porous nature in aërating and pulverizing the soil. The method of its application is so well known that it is not necessary to go further into detail.

Fish. On the coasts of New Jersey, Connecticut, Long Island, etc., Fish are often used as a manure. When composted with seaweed and soil, decomposition is very rapid and the quantity applied to the land must be according to the strength of the compost. It is a valuable manure for all early vegetable crops.

Garden Refuse of almost any description is valuable as a manure, either composted with lime and soil, or dug in, when green. Leaf-soil collected from woods where the leaves have decayed naturally till those beneath the surface have become changed into a light mold is of great value in heavy soils, and in all composts where turfy peat cannot be had. For Rhododendrons, Azaleas, and many fine-rooted, hard-wooded plants, its value is not sufficiently recognized in many places where quantities might easily be collected. Nothing is better suited for improving flower-beds, or for adding to soil of any description for placing round trees, shrubs, or plants, whose roots it is desired to encourage.

Muck is the name given to a deposit usually largely composed of vegetable matter, found in swamps or in hollows of forest lands. Of itself it has usually but little fertilizing property, but from its porous nature when dry, it is one of the best materials to use for mixing with other manures as an absorbent; mixed with night soil it is the basis of Poudrette, a well known commercial fertilizer.

Lime. Under certain conditions and for certain crops, the use of Lime as a manure is often attended with excellent results. Quick-lime is extremely caustic, and possesses the power of decomposing animal and vegetable substances. Its chemical action therefore brings the component parts of the soil into a proper condition for being absorbed by the roots of plants; hence its fertilizing value on land that has been recently broken up, or that contains a quantity of roots, fibre, peat or other inert vegetable matter. Lindley in his "Theory of Horticulture" states that "when this substance (Lime) is mixed with decaying matter, it hastens its decomposition and renders it more easily assimilated. This is its chief horticultural value if regarded as a manure. In old cultivated land, rich in humus, it suddenly increases productiveness in a remarkable degree, increasing the properties of dormant animal or vegetable manure. Hence it has a most important effect in kitchen gardens. But limed land soon loses its productiveness unless manure is subsequently applied, and poor soils are soon run out by it." One of the best methods of apply-

ing it is by composting it with double the amount of soil, weeds, or organic matter of any description (see Composts), spreading it over the ground, and keeping it as near the top of the soil as possible. Applied at the rate of 100 bushels per acre it is of great benefit to grass lands, and all Cereals, Beet-root, Sainfoin, Clover, Peas, etc. Such a compost is also an excellent top dressing for lawns, especially in shady situations, if they get full of moss. To some plants such as many Conifers, Rhododendrons, Azaleas, and almost all members of the Heath family, its presence in the soil is undoubtedly injurious. For Guano, Bone Dust, Ashes, etc., see Fertilizers.

Manure, Liquid. Manure of almost any description is quicker in its action, and may be most efficiently applied in the form of Liquid Manure. It has also the great advantage of economy as it can be applied at any season when nourishment is required by the growing crops, or by plants in pots. Cow Manure forms one of the best substances for this purpose as it possesses none of the caustic principles so prevalent in chemical preparations, and will never injure, no matter how strong it is made. Manure from sheep-pens, poultry or pigeon-houses, is also excellent for this purpose when procurable, but must be used with more caution. Guano, about one pound to twenty gallons of water, or one pound of Sulphate of Lime with half a pound of Nitrate of Soda, are also excellent, but these also must be used with caution. Soot, placed in a bag and left soaking in the water, is an excellent liquid manure always tending to produce healthy foliage of a dark green color. Stir up well a few times, then allow the liquid to stand and become clear, the clearer the better. It is only that which dissolves in the water and becomes invisible, the same as sugar dissolves in tea, that is of real benefit to plants, yet some persons stir up the mud at the bottom of the casks, suspending visible matter in the water. This is generally useless, and often worse, in sealing up the pores of the soil.

Liquid Manure, when kept in casks for some time, is apt to become offensive, though that which escapes is just what plants require, the very essence of the liquid. This may be kept in it by adding a little Sulphate of Iron, an ounce or two probably sufficing. A ready and clean method of preparing Liquid Manure at once, is by stirring a quarter of a pound of Guano well into a four-gallon can or pail of water, or half that quantity of Nitrate of Soda or Sulphate of Ammonia, and applying forthwith where it is needed. The strength named is for garden crops; half that quantity is sufficient for plants in pots, and more should not be used by the inexperienced.

Manures, Absorbents for. This term is used in horticulture for such materials as absorb and retain the liquid portions of manure, among which may be mentioned Charcoal, dry Peat or Muck, Saw-dust, or in short any material that will absorb urine or other liquid forms of manure that is not hurtful to vegetation. Since 1855 a material has come largely into use in the vicinity of New York for stable-bedding of horses and cows in lieu of straw. It is imported from Germany, and is known as German Peat Moss. It is simply the decayed Sphagnum of the swamps, from which the water has been expressed, thoroughly dried, packed in bales and shipped to this country where it is sold at about fourteen dollars per ton. We have had it in use in our stables for over two years and find it to be not only much cheaper than straw, but it has at least three times the value as a deodorizer, and as an absorbent for manure. There is, no doubt abundance of such deposits in the United States, which will doubtless be utilized as soon as their great value becomes appreciated

Maple. The common name for the genus *Acer*.

Marajah Palm. See *Bactris*.

Mara'nta. Arrowroot. Named after *B. Maranti*, an Italian botanist. Nat. Ord. *Scitamineæ*.

A genus of tropical herbaceous plants, pretty extensively disseminated from the West to the East Indies. Some of the species are among the finest ornamental leaved plants in cultivation. *M. zebrina* (known also as *Calathea zebrina*) has leaves two feet long and six inches wide, of a rich deep green, beautifully shaded with a purplish green, and has a soft appearance, resembling the finest velvet. It is a native of Brazil, and was introduced in 1815. *M. Sanguinea*, an excellent plant for house or window culture is now known as *Stromanthe* (which see). Many other well-known species are equally ornamental, and occupy a prominent position in choice collections. Several of the species are cultivated in the East and West Indies for the starch that is contained in their tubers, which is very nutritive, and is commercially known as Arrowroot. The term Arrowroot is said to be derived from the fact that the native Indians used the roots of these plants as an application to wounds inflicted by poisoned arrows. The green-house kinds are of easy culture, heat and water being the main requirements while growing; they should also be shaded from the sun. We have found it an excellent and economical plan to grow them during the summer months in between large foliaged plants, such as Palms, which give them the necessary conditions of shade and moisture. Increased by division. See *Calathea*, to which many *Marantas* have been transferred.

Mara'nteæ. A tribe of *Scitamineæ*.

Mara'ttia. Named after *J. F. Maratti*, an Italian botanist. Nat. Ord. *Polypodiaceæ*.

A well-marked genus of hot-house or green-house ferns, natives of South America and the Eastern and Pacific Islands. Being swamp-loving plants they will grow more luxuriantly if placed partially in water; propagated by spores.

Marcgra'via. In honor of *George Marcgrave*, a German who published a Natural History of Brazil, in 1718. Nat. Ord. *Ternstræmiaceæ*.

M. umbellata, one of the best known species, is a sub-parasitical creeping shrub. At first it is radicant, like some Ferns, but as it advances the stem becomes shrubby, adhering still by its fibers to the trunk of some tree, to the top of which it frequently runs, at length dividing into loose pendulous branches, commonly terminating with umbels of white flowers. It is a native of the cool wooded mountains of Jamaica. It appears in such a

variety of forms that in the different stages of its growth it has been mistaken for different plants. The genus is remarkable for the transformation of its smaller leaves into hollow, tubular bodies, resembling the pitchers of some other plants. It succeeds well in the green-house, and is propagated by cuttings.

Maregra'vieæ. A tribe of *Ternstrœmiaceæ.*

Marciscent. Permanent; not falling off until the part which bears it is perfected, but withering long before that time, as the flowers of *Lobelia, Orobanche,* etc.

Mare's Tail. See *Hippurus.*

Marguerite. *Bellis perennis,* and *Chrysanthemum frutescens.*

Marguerite. Reine. The China Aster, *Callistephus Chinensis.*

Margyrica'rpus. From *margaron,* pearl, and *karpos,* a fruit; resemblance in white fruit. Nat. Ord. *Rosaceæ.*

A small genus of branched rigid shrubs found in the temperate regions of South America and the Andes of Patagonia. *M. setosus* is a pretty little hardy evergreen, well suited for the rockery, and should be so planted that its branches can rest on a dark colored stone, which will show up the fruit to advantage. It was introduced from the Andes in 1829, and is propagated freely by cuttings, or by layers.

Maria'nthus. From *Maria,* Mary, and *anthus,* a flower; dedicated to the Virgin Mary. Nat. Ord. *Pittosporaceæ.*

A small genus of green-house deciduous climbers, natives of Australia. *M. cœruleopunctatus* has pretty pale blue, spotted flowers, and is propagated by cuttings; introduced in 1840.

Ma'rica. From *maraino,* to flag; referring to the ephemeral nature of the flowers, which last hardly a day. Nat. Ord. *Iridaceæ.*

A small genus of fibrous-rooted plants, with very beautiful but transient flowers, somewhat resembling the *Tigridia.* They all grow freely, are increased by division or from seed, and require the protection of the green-house while at rest during winter. They are natives of Central and South America, and were first brought into notice in 1782.

Ma'rigold. See *Calendula* and *Tagetes.*

Marigold. Corn. *Chrysanthemum segetum.*

Marigold. Marsh. See *Caltha palustris.*

Mariposa Lily. The genus *Calochortus.*

Marjoram. See *Origanum.*

Marker. This is a simple implement used mostly by market gardeners to line out drills. It is often home-made by taking a piece of joist 3x4 inches, and about six feet in length, and to each side nailing pointed slats eight or nine inches long, at a width apart usually, on one side of fourteen inches, and the other of nine inches. Two handles four or five feet in length are fastened to it, by which it is dragged, the teeth marking the rows. If wanted deep a weight is placed on the joist. In operating it a line is stretched across the bed to be sown or planted, the first teeth being guided by the line; it is steadily dragged along the bed, making from four to six lines at once, in a much more uniform manner than can be done with the hoe.

Marking Nut Tree. See *Semecarpus.*

Marmorate. Marbled; traversed by irregular veins of color.

Marrow. Vegetable. *Cucurbita Pepo var. ovifera.*

Marru'bium. Horehound. From *marrob,* a Hebrew word signifying a bitter juice; in allusion to the extreme bitterness of the plants. Nat. Ord. *Labiatæ.*

M. vulgare is the common Horehound of our gardens. The plant is a native of Europe, but has become naturalized, and is as familiar as an indigenous plant in the United States. Of the several species, this is the only one valued, and this only for its tonic properties.

Marsde'nia. Named after *William Marsden,* author of a history of Sumatra. Nat. Ord. *Asclepiadaceæ.*

A genus of green-house or half-hardy twining, or sub-erect shrubs, natives of New Holland, Moluccas, tropical America, and the East Indies. *M. tenacissima* furnishes a valuable fibre, and *M. tinctoria* and *M. parviflora* yield by decoction a blue dye resembling indigo. Propagated by cuttings. Syn. *Gonolobus.*

Marsha'llia. Named for *Humphrey Marshall,* of Pennsylvania, author of *Arbustrum Americanum,* one of the earliest works on the trees and shrubs of this country. Nat. Ord. *Compositæ.*

A genus of herbaceous perennials, common to Virginia, and southward. The leaves are alternate, entire, and glabrous; flower scape about one foot high, with a single terminal head of purple or rose flowers, resembling those of the Scabious.

Marsh Cinquefoil. A common name for *Comarum palustre.*

Marsh Mallow. See *Althæa.*

Marsh Marigold. See *Caltha.*

Marsh Rosemary. See *Statice.*

Marsh Trefoil. *Menyanthes trifoliata.*

Marsi'lea. Linnæus dedicated this genus to the *Count L. F. Marsigli,* founder of the Academy of Science, Bologna. Nat. Ord. *Marsileaceæ.*

A genus of curious low-growing aquatics inhabiting Brazil, Australia, Africa, and the south of Europe. They are termed pseudo-ferns, and are very interesting plants for the aquarium.

Martagon Lily. See *Lilium Martagon.*

Martine'zia. In honor of *Balthassar Martinez,* a Spanish naturalist. Nat. Ord. *Palmaceæ.*

A small genus of Palms, mostly of dwarf habit, natives of Central America. A few of the species are under cultivation for decorative purposes.

Marty'nia. Unicorn Plant. Named after *Dr. Martyn,* once Professor of Botany at Cambridge, England; he died in 1768. Nat. Ord. *Pedaliaceæ.*

A genus of hardy and half-hardy annuals, growing from two to three feet high, branching, with heart-shaped leaves, the whole being covered with clammy hairs. Some of the species are quite ornamental, but too coarse-

MERTENSIA VIRGINICA.

MARTYNIA PROBOSCIDEA.

MARTYNIA FRAGRANS.

MALVAVISCUS ARBOREA.

MANGIFERA (MANGO).

MATRICARIA INODORA FL. PL.

MESEMBRYANTHEMUM (TRICOLOR).

MELOTHRIA PUNCTATA.

MEDICAGO LUPULINA (YELLOW TREFOIL CLOVER).

MESEMBRYANTHEMUM CORDIFOLIUM VARIEGATUM.

growing for handsome border plants. *M. proboscidea* is indigenous to southern Illinois and southward, but is most common on the banks of the Mississippi. It is grown in the garden for the young seed pods, which are used to some extent for pickling. They require to be placed three feet apart each way; at that distance, in rich soil, the plants will completely cover the ground. Seed should be sown where it is to grow, in April and May.

Maru'ta Cotula. May-weed. A common field weed.

Marvel of Peru. See *Mirabilis.*

Masdeva'llia. Named after *J. Masdevall,* a Spanish botanist. Nat. Ord. *Orchidaceæ.*

An extensive genus of epiphytal Orchids from South America. The flowers are remarkable for their singularity, and also for their beauty. They require to be grown in a lower temperature than most Orchids, and are increased by division. First introduced in 1835.

Mask Flower. See *Alonsoa.*

Massa'ngea. A small genus of *Bromeliaceæ,* now included by Bentham and Hooker under *Caraguata.* They are grown principally for the elegance of their leaves.

Masso'nia. Named after *F. Masson,* a botanical traveler in South Africa. Nat. Ord. *Liliaceæ.*

A genus of small Cape bulbs. The leaves are commonly two in number, lying flat on the ground. The flowers are in an umbel-like head, nearly sessile, between the leaves. The flowers are sword-shaped, usually white, and of little beauty. They may be wintered in a frame or kept in sand in the green-house, and are increased by offsets. Introduced in 1791.

Mato'nia. Named after *Dr. Maton,* once President of the Linnæan Society, London. Nat. Ord. *Polypodiaceæ.*

M. pectinata, the only species, is a rare and handsome stove-house Fern, with large fan-shaped fronds, one and a half to two feet wide, very hard and leathery. It was introduced from Borneo in 1839, and is increased by spores or division.

Matrica'ria. So called from its former use in medicine. Nat. Ord. *Compositæ.*

A genus of about seventy species of annual, rarely perennial, branched herbs; natives of Europe, Africa and western Asia. Few of the species are worthy of cultivation; the annual sorts are easily raised from seed, the perennial by division or by cuttings. *M. inodora flore-pleno* a double form of a common British weed, is a very free-flowering and desirable border plant. It is also known in cultivation as *Anthemis Chamomilla flore-pleno.*

Ma'tthiola. Stock-Gilliflower. Named after *P. Mathioli,* an Italian botanist. Nat. Ord. *Cruciferæ.*

In this genus we have the well-known Stock in all its multifarious varieties. These, for the purposes of culture, are classed in two divisions: the biennial kinds, as the Brompton, Queen, etc., and the annual or Ten-Week Stocks. The former require to be sown the season previous to that in which they are wanted to flower. They do best when sown in May or June in the open air, allowing them to grow up strong, and when about two inches high they should be potted singly in small pots. This is for the purpose of protecting them through the winter, as in very severe weather, or a long continuance of wet, they perish; but being potted and put in a frame they are perfectly safe as they become harder and better ripened, and in the succeeding spring may be placed where they are to bloom. The seeds of Ten-Week Stocks should be sown in a hot-bed or green-house in February or March. As soon as the plants have completed their second leaves, prick out into shallow boxes, and in three or four weeks they will be ready to pot in thumb pots, and the plants will be sufficiently large for transplanting by the end of the following April. Much attention is paid to the saving of this seed on the Continent, and as many as twelve distinct colors may now be selected; a great many more are advertised, but they are indistinct, and we think it preferable to have a few decided and brilliant colors than a multitude of indefinite shades, several of which are nearly duplicates of each other. The colors run through all the shades of crimson, lilac, rose, white, etc. There are no true scarlets, though some catalogues continue yearly to offer such colors. One of the first requisites to insure good double Stocks is to put the ground intended for them in the very best possible condition. It is a great mistake, and but too common, to suppose that the soil for flowers need not be rich; for we are of opinion, from observation, that, to a great extent, the double state is only brought about by excess of vigor, and if this condition is lost by planting in impoverished ground, it is only reasonable to suppose that the flowers will degenerate to their normal condition. Another common error deserves notice, respecting the choice of plants to bear seed. It is very generally supposed that, to insure seed which will produce double flowers in the following season, it is necessary that the seed-bearing plants stand in close proximity to others which have their flowers double, because it is supposed the single flowers are impregnated with the pollen of the double ones; but to prove the fallacy of this supposition it is only necessary carefully to examine the latter, and they will be found altogether devoid of the organs bearing pollen. The great secret in the production of seed likely to bring double flowers is, we believe, to impart extraordinary vigor to the single plants which are to bear it, and every means available should be resorted to for this end. There is no good reason why as good seed should not be grown in some portions of the United States as in any part of the world. In fact, the finest Stocks we have ever seen were grown from seed saved in the western part of the State of New York, and that from Stocks that had been grown a number of years in order to fairly test the question as to whether Stocks as well as other seeds cannot be produced as well here as in Germany; and the question is settled, that one of our large dealers grows and saves his own seed, and that which gives the greatest satisfaction to his customers. To save seed let the largest pods from the strongest plants be selected, and the seed placed in good ground, and there will be no lack of double flowers. The In-

termediate Stock is an excellent kind to grow in pots for early spring decoration. The seed should be sown about midsummer for this purpose, and the young plants, after being potted, should be brought up as robust as possible; keeping them in frames through the winter until they are in bloom, when they tend to make the green-house gay in March, and in April may be turned into the flower garden, where they continue to bloom for a length of time. Double varieties may be perpetuated by striking the side shoots at midsummer, under a hand glass, as is practiced with pinks, but this trouble is hardly necessary if the foregoing directions are observed. There are several other species included in the genus, only one of which, however, is often seen beyond the precincts of the purely botanical collection, this one is the *Matthiola tristis*, or Night-scented Stock. It is a curious looking plant, with narrow, glaucous foliage, and small, lurid colored flowers, emitting an agreeable fragrance in the evening, and on this account is yet preserved along with its more gay associates. It requires to be grown in the green-house, with the ordinary management of plants belonging to that structure, and is readily increased by cuttings. *M. annua* is the original of all the varieties of the Ten-Week Stocks, and *M. Græca* of the wall-leaved or smooth-leaved Annual Stock; both of which are natives of the South of Europe, and were favorably mentioned as "flowers for the garden for pleasure" by Parkinson in 1629.

Matrimony Vine. See *Lycium.*

Maturation. The process of ripening; also the time when fruits are ripe.

Maura'ndya. Named after *Professor Maurandy*, of Carthagena. Nat. Ord. *Scrophulariaceæ.*

A handsome genus of tender climbing perennial plants from Mexico, with violet, pink, purple, and white colored flowers. All the species are profuse bloomers, and may be treated as annuals, or increased by cuttings. The seed should be sown in February or March, in a hot-bed or in the green-house, and pricked out into shallow boxes, and then into small pots, and grown on until it is time to plant out tender annuals. They are admirable for any sunny situation where a delicate climbing plant is required. They commence to flower in August, and continue until after there has been six to eight degrees of frost. By taking the roots up in the fall, potting, and placing them in a cool green-house or warm cellar, they can be planted out again in spring, and will come into flower much earlier than plants grown from seed. There are two erect growing species from California that we have not yet had an opportunity to test. The genus is allied to *Antirrhinum*, to which the flowers have a great resemblance. *Lophospermum* is included in this genus by some authors. Introduced in 1796.

Mauri'tia. Named after *Prince Maurice* of Nassau. Nat. Ord. *Palmaceæ.*

A genus of Palms peculiar to tropical South America. They grow to an immense size, some species attaining the height of 100 or 150 feet. They bear a crown of enormous fan-shaped leaves, from among which the pendulous flower-spikes are produced. The species are abundant on the banks of the Amazon,

Rio Negro, and Orinoco Rivers. They usually occupy swampy tracts of ground, which are at times completely inundated, and present the appearance of forests rising out of the water.

Mawseed. The seeds of *Papaver somniferum.*

Maxilla'ria. From *maxillæ*, the jaws of an insect; referring to a resemblance of the columns and labellum. Nat. Ord. *Orchidaceæ.*

An extensive genus of epiphytal Orchids. Many of the species are very beautiful, and of delicious fragrance; others, on account of their small flowers, are not worthy of cultivation. Some of them have their flowers hanging down from the pseudo-bulbs, and are grown in baskets of moss or on pieces of cork, or hung by wires to the rafters of the Orchid house. All of them are adapted to the cool house.

Maximilia'na. Named after *Prince Maximilian.* Nat. Ord. *Palmaceæ.*

M. regia, the only known species, is an immense-growing Palm of the Amazon. Its trunk often exceeds 100 feet in height, and is crowned with leaves from thirty to fifty feet long, and its woody spathes, when open, frequently measure as much as five or six feet in length, by about two feet in width, tapering to a long point or beak. These spathes are so hard that when filled with water they will stand the fire, and are sometimes used by the Indians as cooking utensils, but more frequently as baskets for carrying their stores.

May Apple. See *Podophyllum.*

May Flower. See *Epigæa.*

Mayte'nus. From *Mayten*, the Chilian name of the genus. Nat. Ord. *Celastraceæ.*

A genus of evergreen shrubs or small trees with alternate coriaceous leaves, and small flowers, solitary, or clustered in the axils. The arborescent species have very hard wood, and the leaves of the commonest Peruvian species, although astringent, are said to be greedily devoured by cattle. They are seldom found in cultivation.

May Tree or May Bush. See *Cratægus.*

May Weed. The popular name of the genus *Maruta.*

Meadow Beauty. See *Rhexia.*

Meadow Clary. *Salvia pratensis.*

Meadow Grass. See *Poa pratensis.*

Meadow Pink. A common name of *Dianthus deltoides.*

Meadow Rue. See *Thalictrum.*

Meadow Saffron. See *Colchicum.*

Meadow Sweet. See *Spiræa Ulmaria.*

Mealy. Covered with a scurfy powder.

Mealy Bug. See *Insects.*

Mecono'psis. From *mekon*, the poppy, and *opsis*, like. Nat. Ord. *Papaveraceæ.*

A genus of hardy herbaceous perennials, natives of Britain, north-west America, and the Himalayas. *M. cambrica*, common in Wales where it is known as Welsh Poppy, is a showy plant, growing about one foot high, with bright-green, pinnate, hairy leaves, slender stems, and large terminal, short-lived flowers, of a delicate sulphur yellow color. Propagated by seeds or by division.

Mede'ola. Indian Cucumber root. Named after *Medea*, the sorceress. Nat. Ord. *Liliaceæ.*

MED

M. Virginica, the only species, is a hardy herbaceous perennial, common from Virginia southward. It has a creeping, tuberous root, tasting like a cucumber, from which the plant derives its local name, Indian Cucumber. It has an erect, simple stem, with sessile leaves produced in whorls, with a terminal umbel of small, greenish-yellow flowers.

Medica'go. Medick. From *mediko*, a name given by Dioscorides to a Median Grass. Nat. Ord. *Leguminosæ*.

A genus of weedy-looking plants, with yellow pea-flowers which are generally single or in small clusters. The seed pods in many of the species, are very curious, some resembling snails, others hedgehogs, and others beehives. They were formerly found in seedmen's catalogues under these various names, and recommended to garnish dishes of meat, etc. They are now seldom met, as the plants to which they belong are found not worth growing. *M. lupulina*, the yellow Trefoil, is an excellent fodder plant, either alone or when mixed with grasses. It starts very early in the spring, is very productive, and grows rapidly. *M. sativa* is the well-known *Alfalfa*, or *Lucerne*, now extensively used in California and many other parts of the world as a forage crop. It is particularly fitted from its deep-rooting properties, for dry, barren soils. In some sections of California five crops are cut annually, and at this writing it is considered the most valuable forage crop of the State. See *Alfalfa*.

Medick. See *Medicago*.

Medini'lla. Named after *J. de Medinilla y Pineda*, Governor of the Marianne Islands. Nat. Ord. *Melastomaceæ*.

A small genus of East Indian evergreen shrubby plants, with large fleshy leaves, and large pendulous racemes of white or rose-colored flowers. The species generally met in our green-house is *M. magnifica*, a plant that truly deserves the name. Its enemy in the green-house is the mealy bug, which is very sure to find it. It is propagated by cuttings, and requires considerable heat to grow it in perfection. Introduced in 1884.

Medlar. See *Mespilus*.

Medlar, Japanese. See *Photinia Japonica*.

Medulla, Medullary. The pith of a plant; that central column of cellular matter over which the wood is formed in Exogens.

Medusa's Head. *Euphorbia Caput-Medusæ*.

Megacli'nium. From *megas*, large and *kline*, a bed; referring to the axis or rachis on which the flowers are borne. Nat. Ord. *Orchidaceæ*.

A small genus of epiphytal Orchids of tropical western Africa, closely allied to *Bulbophyllum*, remarkable for the curious flattened, sword-shaped flower stalks, upon which the curious little flowers are seated in a straight row along the middle on both sides. The flowers are of a greenish or yellowish brown, spotted more or less with purple. Some of them have a fancied resemblance to little frogs or toads, whence one species has been named *M. bufo*. They are seldom met except in large collections.

Megarrhi'za. Big-Root. From *megas*, large, and *rhiza*, root; alluding to the large tuberous root stocks. Nat. Ord. *Cucurbitaceæ*.

MEL

A genus of tuberous rooted, climbing plants with small white flowers which are produced in early spring, the leaves are cordate, palmately lobed or angled. "A genus confined to the Pacific coast, the species not all known, nearly allied to the *Echinocystus* of the Atlantic States, to which it has been referred, but from which it is separated by its thick perennial roots, its large turgid emarginate seeds, and its thick fleshy cotyledons, which remain under ground in germination. The fruit in some species appears to be wholly indehiscent." Cal. Bot.

Mega'sea. A genus now included under *Saxifraga*.

Melale'uca. From *melas*, black, and *leukos*, white; referring to the color of the old and young bark. Nat. Ord. *Myrtaceæ*.

This genus consists of evergreen trees and shrubs, natives of Australia and the islands in the Indian Ocean. They have alternate flat or cylindrical leaves, and yellowish, purple, or crimson flowers produced in axillary clusters. *M. leucadendron minor* is one of the more important species the leaves of which after fermentation are distilled for the purpose of yielding the well-known Cajeput Oil, a limpid, very volatile, powerfully aromatic oil, of a bluish-green color, highly valued as a preservative of all preparations of natural history. The leaves of this species are used as a tonic, and the bark is used as oakum and for thatching houses. Numerous species are grown as green-house plants, on account of the simplicity of their foliage and the beauty of their clustered flowers.

Melampy'rum. Cow-wheat. A genus of *Scrophulariaceæ*, natives of Europe and western Asia, one being very broadly dispersed over Asia and North America. *M. arvense* has large oblong spikes of flowers, variegated with yellow, green, and crimson, and forms quite a conspicuous object in the corn fields in the Isle of Wight, England. Our native species *M. Americanum* is common in open woods and is inconspicuous.

Melana'nthon. Dark-flowered.

Melanoca'ulon. Black-stemmed.

Melantha'ceæ. A natural order included by Bentham and Hooker under *Liliaceæ*.

Mela'nthium. From *melos*, black, and *anthos*, a flower; referring to the dusky flowers. Nat. Ord. *Melanthaceæ*.

A small genus of half-hardy bulbs, requiring the protection of the green-house or pit during winter. The flowers are white, yellow or pink, and some with nearly black flowers. All have very much the appearance of small Ixias. They grow in a light soil, flower in early summer, and are increased by offsets; introduced in 1797.

Melasphæ'rula. From *melas*, black, and *sphærula*, a ball; referring to the blackish bulbs. Nat. Ord. *Iridaceæ*.

A small genus of very pretty green-house plants of graceful habit, producing a profusion of yellow or yellowish-green flowers which remain in perfection for a considerable time. They are natives of the Cape of Good Hope, and require to be treated similarly to the *Ixias*. Syn. *Aglæa* and *Diasia*.

Mela'stoma. From *melos*, black, and *stoma*, a mouth; the black berries of certain species when eaten stain the mouth. Nat. Ord. *Melastomaceæ.*

This genus contains a considerable number of species, distributed over tropical Asia and the islands of the Indian and Pacific oceans, extending as far south as Moreton Bay. The plants are small shrubs, covered with close-pressed hairs, and have large violet-purple, pale rose, or white flowers, mostly in fascicles at the summit of the branches. Propagated in spring by cuttings.

Melastoma'ceæ. A natural order of trees, herbs, or shrubs, with opposite, ribbed leaves and showy flowers. They are found chiefly in warm climates, though some are natives of more temperate regions. There are no unwholesome plants in the order, and the succulent fruit of several is edible. There are over one hundred genera, and nearly two thousand species. Illustrative genera are *Pleroma, Rhexia, Miconia*, and *Bertolonia.*

Melha'nia. From *Mount Melhan*, in Arabia Felix, where the original species was first found. Nat. Ord. *Sterculiaceæ.*

A genus of about sixteen species of ornamental trees or shrubs, natives of Africa, the warmer parts of Asia, and tropical Australia. *M. erythroxylon* is a handsome green-house plant, with white flowers changing to pink, and ovate, cordate leaves, tomentose beneath. It is a native of St. Helena, and only a very few individuals now exist in its native habitat. *M. melanoxylon*, also from St. Helena, has, within comparatively recent years, become quite extinct in a wild state, and probably no longer exists in cultivation.

Me'lia. Bead Tree. From *Melia*, the Greek name for the Ash; in allusion to the resemblance in the leaves. Nat. Ord. *Meliaceæ.*

A small genus of tropical trees and shrubs, with alternate pinnate or bipinnate leaves, and flowers borne in panicles. *M. Azedarach*, commonly known as the Pride of India, False Sycamore, Holy Tree, Arbre à Chapelet, Bead Tree, Hill Margosa, and in our Southern States also as Umbrella China Tree and China Berry, is, says Dr. Masters, "widely diffused over the globe, having been carried to America, Africa, and different parts of southern Europe. It is from thirty to fifty feet high, with bi-pinnate leaves, and large bunches of fragrant, lilac-colored flowers, which are succeeded by a fruit about the size of a Cherry, with an external pulp and a hard nut within. In southern France and Spain the tree thrives well in the open air, as it does in our Southern States. The Arabic name, Azedarach, implies a poisonous plant, and the fruit is generally considered so. The root is bitter and nauseous, and is used as an anthelmintic. The tree is supposed to possess febrifugal properties, and a decoction of the leaves is used as a remedy for hysterics. It derives the name Bead Tree on account of the use made of the seeds in Catholic countries where the nuts are threaded for beads, for which purpose they are peculiarly suited, having a natural perforation through the centre; hence the tree has been called Arbor Sancta." We make the following extract from the *American Agriculturist*: "The tree is not hardy north of Virginia, but southward it is a common street tree, and frequent around country places. The ease with which it may be transplanted and its rapid growth are somewhat offset by the readiness with which its branches are broken by high winds. Its wood makes excellent fuel, is durable, and is used for furniture. There has been introduced from Texas, within a few years, a marked variety, called the Umbrella China Tree. Several years ago we saw a small specimen of this in the extensive collection of P. J. Berckmans, near Augusta, Ga., which promised to be valuable, and now we have a photograph of a tree in Abbeville, Ala., taken by J. C. Mangold, to show the remarkably compact habit and umbrella-like form. Mr. J. A. Clendinen sends an account of the tree, from which we learn that the foliage is so dense that it will turn almost any rainfall. It does not fruit so abundantly as the ordinary form of the tree, but, what is quite remarkable, the variety is reproduced from the seed. This variety of the favorite China Tree will commend itself to our readers in the Southern States, as it has naturally the compact habit that is somewhat imperfectly produced in the ordinary form of the tree by severe cutting. China Berries, as the fruit of the tree is usually called, are eaten by sheep and goats, which in winter require but little other food; cows are fond of them, but they impart an unpleasant taste to the milk. The hard stone is sometimes bored and strung to make rosaries and necklaces, hence the tree is known in some countries as the Bead Tree."

Melia'ceæ. A natural order of trees and shrubs with alternate, pinnate leaves, without stipules, flowering in panicles. They are natives of the tropics of America and India, and very rare in Africa. The flowers of this order are generally fragrant, aromatic, and tonic. Many supply compact beautifully-veined timber, such as the well-known Mahogany of tropical America (*Swietenia Mahogoni*), the Satin-wood of India (*Chloroxylon Swietenia*), the Yellow-wood of New South Wales (*Oxleya xanthoxyla*), the Red-wood of Coromandel (*Soymida febrifuga*), and the Toon of India, or Simal-Kun of the Lepchas (*Cedrela Toona*). A kind of oil is procured from Satin-wood, and the barks of *Cedrela febrifuga*, as well as the Mahogany Tree, and others, are used medicinally in intermittent fevers, etc. There are nine known genera and twenty-five species. *Swietenia, Cedrela, Flindersia*, and *Soymida* are examples of the order.

Melia'ntheæ. A tribe of *Sapindaceæ.*

Melia'nthus. Honey Flower. From *meli*, honey, and *anthos*, a flower; the tubes contain a copious supply of honey-like juice. Nat. Ord. *Sapindaceæ.*

A small genus of ornamental shrubs or small trees from the Cape of Good Hope, producing axillary or terminal clusters of purple flowers, from which the natives obtain honey for food by shaking the branches. They are rarely, if ever, introduced into the green-house, and it is difficult to make them flower. *M. major* is an old green-house plant, the leaves of which have a peculiar odor, which has given it the name of "Pease Meal Plant." It is easily raised from seed and forms a very ornamental plant with smooth, glaucous, deeply-cut leaves; largely employed in sub-tropical gardening.

Meli'chrus. From *melichros*, honey-colored, in reference to the color of the glands of the flower. Nat. Ord. *Epacridaceæ*.

A small genus of ornamental green-house shrubs, with a procumbent or somewhat erect habit; natives of eastern, temperate Australia. They have erect, showy, scarlet flowers with sessile lanceolate leaves, and are propagated by cuttings of the half-ripened shoots.

Meli'cope. From *meli*, honey, and *kope*, a division; in allusion to the four honey glands at the base of the ovaries. Nat. Ord. *Rutaceæ*.

A genus of about fifteen species of green-house shrubs, natives of New Zealand and the Pacific Islands. *M. ternata*, the only species yet in cultivation, has greenish-white, rather small flowers, borne in axillary many-flowered cymes. It was introduced from New Zealand in 1822, and is propagated by cuttings of the small side shoots.

Melilo'tus. Sweet Clover. From *meli*, honey, and *Lotus*. The plants are said to be the favorite resort of bees. Nat. Ord. *Leguminoseæ*.

This genus consists of about twenty species, mostly belonging to southern and central Europe and western Asia. Some of the species are grown in their native countries as forage plants. *M. officinaiis*, with yellow flowers, and *M. alba*, with white flowers, are common on the roadsides in the United States, having become naturalized from Europe, and are sometimes cultivated as "Bee Plants."

Meli'ssa. Balm. From *melissa*, a bee; literally, a bee-flower. Nat. Ord. *Labiatæ*.

A genus of hardy, herbaceous perennials. The different species being widely diffused throughout Europe, middle Asia, and by naturalization in the United States. *M. officinalis* has varieties having delightfully fragrant leaves finely marked with yellow and white, known as Golden and Silver Balm. They are all hardy perennials, and propagated by cuttings and by division of the roots.

Meli'ttis. Bee Balm. From *melitta*, a form of the Greek *melissa*, a bee, to which insect the plant was considered specially grateful. Nat. Ord. *Labiatæ*.

M. Melissophyllum widely diffused in Europe, is a very handsome hardy perennial, with large creamy-white flowers, spotted pink or purple. It is most distinct in character, and should be grown extensively on the margins of shrubberies, and in herbaceous borders generally. Propagated by division.

Melleous. Having the taste or smell of honey.

Melliferous. Honey-bearing.

Meloca'ctus. Melon Thistle. From *melos*, a melon, and *cactus;* in allusion to the appearance of the plants. Nat Ord. *Cactaceæ*.

A sectional genus of Cactus, differing from Echinocactus in having the flowers produced on a head or cushion covered with dense, woolly and bristly hairs, and beset with spines, while those of the Echinocactus issue from the bare ribs or angles. *M. communis*, the Turk's Cap Cactus, so called from the flowering portion on the top of the plant being of a cylindrical form and red color, like a fez cap, is a fair representative of this class. In South America and in many of the West Indian Islands it is very common, covering large tracts of barren soil. Notwithstanding the arid places in which they grow, they contain a considerable quantity of moisture, and the mules resort to them when hard pressed for water, carefully removing the spines with their fore-feet previous to quenching their thirst with the juice. They are not often seen in cultivation, and are more grotesque than beautiful.

Melodi'nus. From *melon*, an Apple, and *dineo*, to turn round; referring to the shape of the fruit. Nat. Ord. *Apocynaceæ*.

A genus of woody-stemmed often climbing plant-stove shrubs, natives of the East Indies, China, the Malayan Archipelago, the Pacific Islands and Australia. They are very ornamental plants, closely allied to *Dipladenia* and are well worthy of cultivation for their showy flowers. *D. monogynus* has large, white, fragrant flowers, borne in axillary and terminal panicles, followed by four-cornered yellow fruits, the size of an orange, containing an edible pulp. It was introduced from northern India in 1820.

Melon. Musk. *Cucumis Melo.* See *Musk-Melon.*

Melon-Thistle. See *Melocactus.*

Melon. Water. *Cucumis Citrullus.* See *Water-Melon.*

Melon-Wood. A yellow Mexican wood, which resembles Sander's wood; used for furniture.

Melo'thria punctata. This is given in "Nicholson's Dictionary of Gardening" as the correct name of the beautiful little climbing cucurbitaceous plant known as *Pilogyne suavis.* It is a native of South Africa, and was introduced to this country by way of Germany in 1875. See *Pilogyne.*

Meni'scium. A group of ten species of very distinct, though coarse-habited Ferns, with simple, or once-pinnate fronds. The sori are naked, linear-oblong and curved, placed on the transverse venules. Sometimes the fronds are contracted and the fructification becomes crowded, almost like *Acrostichum.*

Menisperma'ceæ. A natural order of trailing shrubs with alternate, simple, usually entire leaves, and incomplete, usually unisexual flowers. They occur in the tropical woods of Asia and America, and have bitter and narcotic properties, some being very poisonous. There about thirty genera, and three hundred species. Illustrative examples are *Anamirta, Cissampelos* and *Menispermum.*

Menispe'rmum. Moon-seed. From *mene*, the moon, and *sperma*, a seed; the fruit is kidney or half-moon shaped; whence the English name Moon-seed. Nat. Ord. *Menispermaceæ*.

A small genus of handsome climbing shrubs, natives of the Northern States and Europe, with curiously-shaped leaves, racemes of yellowish or greenish-white flowers, and red or black berries, which have somewhat of an intoxicating quality. *M. Canadense*, which is the commonest species, is a very ornamental, hardy, free-growing climber, admirably adapted for covering a wall or arbor in a very short time. It is well deserving of general cultivation, and yet it is comparatively little known, perhaps on account of the modest color of its elegant little drooping racemes of

flowers, which are generally hidden from common observers by the leaves. It looks very well on a lawn trained up a single pole, and with the extremity of its branches left to spread themselves to the wind at pleasure. It also looks very well trained to form a pillar, or to a frame with an umbrella-top, etc. Propagated by cuttings, or from seed sown in spring.

Me'ntha. Mint. The Latin version of the Greek name *Minthe*, borne by the daughter of Cocytus, who, according to the poets, was metamorphosed into a Mint plant by Proserpine in a fit of jealousy. Nat. Ord. *Labiatæ*.

A well-known genus of useful herbs. The species are pretty generally distributed throughout the cooler parts of the world, but are most common throughout Europe. They have, through naturalization, become quite common in many parts of the United States. *M. piperita* is the well-known Peppermint. It is extensively cultivated in Wayne County, N. Y., for the sake of its volatile oil, which is procured by distilling its leaves. *M. viridis*, or Spearmint, is the plant that is used for culinary purposes under the name of Mint. This species is extensively forced or forwarded under glass, and thousands of dollars' worth of it are sold in the winter and spring months in the markets of New York. *M. Pulegium* is the true Pennyroyal, a native of Great Britain, like the preceding species. (The plant known as Pennyroyal of our woods is an annual, *Hedeoma pulegioides*, American Pennyroyal.) The species are abundantly propagated by suckers, division, or cuttings, and but rarely produce perfect seed. The only difficulty in their cultivation in the private garden is in keeping them within bounds. *M. citrata*, a native of Europe, is the species from which the Oil of Bergamot is extracted.

Mentze'lia. Named in honor of *C. Mentzel*, a German botanist. Nat. Ord. *Loasaceæ*.

A genus of hardy annuals and perennials, mostly with large white, showy flowers; common on the western plains. *M. albicaulis*, a low-branching plant from six to ten inches high, with white polished stems, and deeply cut, lance-shaped leaves, is found abundantly on the arid, sandy plains of Oregon and California. It produces oily seeds that the Indians pound up and make into cake, which forms part of their food. They are all easily raised from seed. *Burtonia* is now generally included under this genus.

Menya'nthes. Buck Bean. From *men*, a month, and *anthos*, a flower; the time of duration. Nat. Ord. *Gentianaceæ*.

The European kinds have white flowers, but some of the exotic species, now called *Villarsia*, which are natives of Australia and the Cape, are very handsome, with very showy yellow flowers. They are all marsh plants, and should be sown or planted in the mud or soft ground left by the water. Some of the kinds are only half-hardy. *M. trifoliata* is common in moist places from New England north and westward. It produces racemes of very pretty white or slightly reddish flowers, about one foot high.

Menzie'sia. Named after *A. Menzies*, surgeon and naturalist of the expedition under Vancouver. Nat. Ord. *Ericaceæ*.

The several species that constitute this

genus are small, handsome, heath-like shrubs, natives of the North American coast. The flowers are larger and more globular than the common Heath, and much handsomer; they are terminal, either singly or in clusters. They were introduced in 1810, and are propagated by layers in autumn or by cuttings.

Mercuria'lis. So named after *Mercury*, who is supposed to have discovered some virtues in the genus. Nat. Ord. *Euphorbiaceæ*.

A genus of uninteresting plants widely distributed in temperate climates. *M. perennis*, the Dog's Mercury, is a poisonous plant which turns a dull bluish-green when dried; a deep blue dye of a fugitive nature may be obtained from it.

Merende'ra. A name given to *Colchicum* by the Spaniards, and applied to this genus because of its affinity. Nat. Ord. *Liliaceæ*.

M. Caucasica, the best known species, is a hardy bulb with purple flowers, from the Caucasus. It is very like *Bulbocodium vernum*, but flowers in autumn and grows freely in the garden with the same treatment as is given to other hardy bulbs. *M. Persica*, introduced in 1872, under the name of *M. Aitchinsoni*, has pale lilac, fragrant flowers, about two inches in diameter. It was introduced in 1823, and is propagated by offsets.

Mermaid Weed. The popular name of the genus *Proserpinaca*, a common plant in sandy swamps near the coast.

Merte'nsia. Named in honor of *Prof. F. C. Mertens*, a German botanist. Nat. Ord. *Boraginaceæ*.

A genus of very handsome, hardy perennial, glabrous, or pilose herbs, natives of eastern Europe, Asia, and North America. Flowers blue or purplish, in terminal racemes, leaves alternate, often pellucid-dotted. *M. Virginica* (the Virginian Cowslip), syn. *Pulmonaria*, is an admirable plant for either the herbaceous border, or for rock work. Propagated by division, or by seeds sown as soon as ripe.

Mery'ta. From *meryo*, to roll up; in reference to the male flowers forming something like a rolled-up ball. Nat. Ord. *Araliaceæ*.

A genus of six species of stove or greenhouse glabrous trees, natives of Norfolk Island, New Zealand, and the South Pacific Islands. *M. Denhami* and *M. macrophylla* are cultivated for their showy and ornamental foliage.

Mesembryaceæ or Mesembryaceæ. A natural order now included by many botanists as a tribe of *Ficoideæ*.

Mesembrya'nthemum. Fig Marigold, Ice Plant. From *mesembria*, midday, and *anthemon*, a flower; referring to the flowers opening better on sunny days. Nat. Ord. *Ficoideæ*.

This genus consists of nearly four hundred species, more than one hundred and fifty of which have been introduced and highly recommended for the flower garden. They are very succulent and grow in hot, sandy plains, the genus being almost entirely confined to the Cape of Good Hope. Their leaves are very variable in form, but almost always of a thick, fleshy texture; the flowers, which embrace all shades of orange, crimson, pink, white, etc., are most of them very beautiful, the petals of brilliant colors and of a lasting nature, with a handsome centre. They only

expand in the sunshine, and are well adapted for a hot situation, one in which but little else would thrive well. *M. crystallinum*, a native of the Canary Islands and Greece, as well as of the Cape of Good Hope, is the common Ice Plant of our gardens, so called in consequence of every part of the leaf and stalk being covered with small watery pustules, which glisten in the sun like fragments of ice. Large quantities of the plant are collected in the Canaries and burned, the ashes being sent to Spain for use of glassmakers. The English name of Fig Marigold is applied to *M. edule*, the fruit of which is shaped like a fig, and which is eaten by the Hottentots; and to the flower, which resembles that of the Marigold in shape, and sometimes in color. *M. cordifolium variegatum* is remarkable for the distinct variegation of its leaves, white and green. It is a free-growing plant, well adapted for rockeries, vases, or edgings to beds or ribbon borders. This variety is increased by cuttings, as the variegation is not constant in plants grown from seed. All the species are easily increased by cuttings.

Mesopini'dium. From *mesos*, medium-sized, and *spinidium*, a bird. Nat. Ord. *Orchidaceæ*.

A small genus of beautiful little Orchids from the Andes of Peru, nearly allied to *Odontoglossum*. *M. sanguineum* is one of the most showy species, and is interesting on account of its nodding racemes of rosy flowers. The species are rarely seen in collections. They may be grown in a cool house, must be sparingly watered, and are increased by division; introduced in 1867.

Me'spilus. Medlar. From *mesos*, half, and *pilos*, a ball; referring to the shape of the fruit of the Medlar. Nat. Ord. *Rosaceæ*.

A genus of low-growing, hardy deciduous trees, common to Europe. They are ornamental and produce an edible fruit of but little value. They are good plants for shrubberies, or for single specimens like the Hawthorn, which they resemble somewhat in appearance.

Mesquit or **Meskit.** *Prosopis juliflora.*

Me'sua. Named after *Mesue*, the father and son, two celebrated Arabian physicians and botanists, who resided at Damascus, and flourished in the eighth and ninth centuries. Nat. Ord. *Guttiferæ*.

A small genus of tender evergreen trees from tropical Asia, remarkable for their beautiful foliage, and large, pure white axillary flowers, which are highly fragrant. The flowers, both fresh and dried, are sold in all the Indian bazaars, under the name of Nagkesur, being held in high esteem on account of their fragrance.

Metho'nica. A synonym of *Gloriosa*, which see.

Metrodo'rea. In memory of *Metrodorus Sabinus*, said to have been the first draughtsman of plants. Nat. Ord. *Rutaceæ*.

M. atropurpurea, the only described species, is a shrubby stove-house shrub with purplish flowers borne in panicles. It is a native of Mexico, introduced in 1851.

Metrosi'deros. From *metra*, heart-wood, and *sideros*, iron; referring to the hardness of the wood. Nat. Ord. *Myrtaceæ*.

A genus of lofty trees, climbers and shrubs, natives of New Zealand. *M. robusta* is a tall tree with a stout, erect trunk, and a branching head of myrtle-like foliage, and showy, scarlet or crimson flowers. The wood of this species is very valuable for ship timber. *M. tomentosa*, is called the *Fire Tree* by the colonists, on account of its brilliant flowers. One or two species are under cultivation in the greenhouses, where their bright scarlet flowers are very effective. They were first introduced in 1787, and are propagated from cuttings of the young wood.

Metro'xylon. From *metra*, the heart of a tree; and *xylon*, wood, in allusion to the large proportion of pith contained in the plant. Nat. Ord. *Palmaceæ*.

A small genus of erect plant-stove palms, natives of the Malayan Archipelago, New Guinea, and the Fiji Islands. From the trunks of *M. lævе* and *M. Rumphii* part of the sago of commerce is prepared. Syn. Sagus, which see.

Metterni'chia. Named after *Prince Metternich*, of Austria, 1772–1859. Nat. Ord. *Solanaceæ*.

A genus of handsome plant-stove evergreen plants similar in habit to *Brunsfelsia*, natives of South America. They have very showy funnel-shaped flowers, with entire shining, somewhat coriaceous leaves. They are closely allied to *Lisianthus*.

Me'um. From *meion*, small; in allusion to the leaves. Nat. Ord. *Umbelliferæ*.

A small genus of hardy herbaceous plants, most of which are of but little merit. *M. athamaticum* (Spignel), a native of Scotland, is a plant of compact habit, with charmingly cut foliage of most intense green; its flowers are of no importance, but its leaves are of great value for decorative purposes.

Mexican Fox Glove. See *Tetranema.*

Mexican Tea. See *Chenopodium.*

Mexican Thistle. See *Erythrolæna.*

Mexican Tiger Flower. See *Tigridia pavonia.*

Meye'nia. Named in honor of *M. Meyen*. Nat. Ord. *Acanthaceæ*.

M. erecta, the best known species, is a very pretty green-house shrub with purple and yellow flowers, introduced from West Africa in 1857. The genus is now included under *Thunbergia*, which see.

Mezereon. A common name for *Daphne Mezerium.*

Mice. Field. Are often very destructive to some kinds of garden crops, particularly such plants as are kept under glass in winter, such as Vines in cold graperies, Cabbage, Lettuce or such plants as are kept in cold frames. They are easily destroyed by any of the methods used for the destruction of the ordinary mice or rats.

Michælmas Daisy. The English name for the genus *Aster.*

Micha'uxia. Named after *A. Michaux*, a French botanist. Nat. Ord. *Campanulaceæ*.

A genus of hardy biennials, chiefly found in the Levant. They are allied to the Campanulas, and are of easy culture. *M. campanuloides* is a remarkable and highly ornamental plant, growing from three to eight feet high. The flowers are white, tinged

with purple, and are arranged in a pyramidal candelabra-like head, which makes it very striking and distinct. It flourishes best in a moist and deep sandy loam, and should be treated as a hardy biennial, seedlings being raised annually so as always to have good flowering plants. Its fine stately form and tall stature are very effective, either in the mixed border or when given a nook to itself in a choice bed of evergreen shrubs. They are all of easy culture, were first introduced in 1787, and are propagated by seeds.

Miche'lia. Named after *P. A. Michele*, a famous Florentine botanist, who died in 1757. Nat. Ord. *Magnoliaceæ*.

Lofty evergreen trees, natives of India and the islands of the Eastern Archipelago. *M. Champaca* is cultivated in India for the powerful fragrance of its flowers, which is said to be so strong that bees seldom if ever alight on them. The tree is sacred to Vishnu, and is therefore an object of superstitious regard on the part of the Hindoos, who adorn their dark hair with the rich orange-colored flowers. It has seldom been introduced into the greenhouse, and where tried it has not proved an acquisition.

Mico'nia. Named after *D. Micon*, a Spanish botanist. Nat. Ord. *Melastomaceæ*.

A large genus of trees and shrubs, natives of tropical America and Asia. The flowers are white, pink, purple, red, or yellow, generally in terminal panicles. A few of the species are grown for their beautiful foliage. The genus contains nearly 300 species.

Microca'chrys. From *mikros*, small, and *kachrys*, a cone; referring to the very small cones. Nat. Ord. *Coniferæ*.

M. tetragona, the only species, is a prostrate, much-branched evergreen shrub, introduced to cultivation from the mountains of Tasmania in 1857. It is called the "Strawberry-fruited Cypress of Tasmania," and is described in the Gardener's Chronicle "as quite a gem among conifers." The female plant is very pretty, having nearly every one of its multitude of little branchlets terminated by a bright-red, almost globular, fleshy cone, measuring about one-quarter of an inch from base to apex. By training up a leader, the lateral branches arrange themselves in a drooping manner round about. Syn. *Dacrydium tetragonum*.

Microglo'ssa. From *mikros*, small, and *glossa*, a tongue; alluding to the shortness of the straps of the ray-flowers. Nat. Ord. *Compositæ*.

A genus of about six species of small shrubs, natives of the warmer parts of Asia and Africa. *M. albescens* (syn. *Aster albescens*) is a handsome, hardy shrub, introduced from the Himalayas in 1883. The flower-heads are small, in a diffuse corymb, and are of a beautiful blue color. Propagated by seeds or by division of the roots.

Microle'pia. From *micros*, small, and lepis, a scale; in allusion to the appearance of the spore, or seed-cases. Nat. Ord. *Polypodiaceæ*.

A genus of strong-growing evergreen Ferns, closely allied to *Davallia*, under which genus they are included by some authors. The species are plants of easy culture, and of great

beauty, all well adapted for amateur collections, as they thrive well in a moderate temperature. They are found in nearly all the sub-tropical parts of the world. Introduced in 1836.

Microli'cia. From *mikros*, small, and *alikia*, stature; the plants are dwarf. Nat. Ord. *Melastomaceæ*.

A large genus, comprising over seventy species, few of which are of any horticultural value. *M. bivalvis* and *M. recurva*, introduced from Trinidad in 1822, are pretty dwarf plants with purple flowers, and are increased by seeds or division.

Microme'ria. From *micros*, small, and *meris*, a part; referring to the usually diminutive flowers. Nat. Ord. *Labiatæ*.

A genus of hardy or half-hardy shrubs or herbs, comprising about sixty species, dispersed over nearly all the temperate and warmer parts of the globe, but occurring in the greatest abundance in the Mediterranean region. Some of the species have an odor like common Thyme, others smell like Mint. *M. Piperella* is a pretty little rock plant, and may be increased by cuttings.

Micromy'rtus. From *micros*, small, and *Myrtos*, Myrtle; small Myrtles. Nat. Ord. *Myrtaceæ*. A genus of heath-like green-house shrubs, natives of Australia. *M. microphylla*, the only species yet introduced, forms a neat little green-house plant, with small white flowers, borne in racemes on the upper branches. It is propagated by cuttings of the half-ripened wood, and was introduced to cultivation in 1870.

Microspe'rma. From *mikros*, small, and *sperma*, a seed. Nat. Ord. *Loasaceæ*.

M. bartonioides, is a very pretty little yellow California annual, now included by Bentham and Hooker under *Mentzelia*. It is also in cultivation under the name of *Eucnide bartonioides*.

Micro'stylis. From *mikros*, small, and *stylos*, a column. Nat. Ord. *Orchidaceæ*.

A small genus of terrestrial or epiphytal orchids, natives of tropical America and India. But few of the species are under cultivation. *M. discolor*, a native of Ceylon, is a very interesting plant, worthy of a place in every collection. It is characterized by Sir William Hooker "as among the most lovely of terrestrial orchids. The foliage is a rich purple, sometimes with a green edge plaited longitudinally and much crisped at the margin, nor are the flowers, though minute, wanting in singularity of structure, when seen under the microscope. They have the property of changing color, being at first yellow, then orange, or purple." It requires the same treatment as the *Anæctochilus*.

Midday Flower. The Australian settlers' name for *Mesembryanthemum*.

Midrib. The large vein extending along the middle of a leaf, from its petiole nearly or quite to the other end.

Midshipman's Butter. See *Persea*.

Mid-winter Sunflower. See *Leptosyne*.

Mignonette. *Reseda odorata*. This well-known plant is generally treated as an annual and sown every year as such; but it is, in

MIMULUS TIGRINUS FL. PL.

MILLA BIFLORA.

MICROLEPIA HIRTA CRISTATA.

MIGNONETTE.

MIMOSA PUDICA.

MIMULUS MOSCHATUS.

MIRABILIS (MARVEL OF PERU).

MINA LOBATA.

MONTBRETIA POTTSI.

MOMORDICA BALSAMINA.

MOMORDICA CHARANTIA.

MONTBRETIA CROCOSMIÆFLORA.

MOLUCELLA LÆVIS.

MIMULUS CARDINALIS.

fact, a shrub, and if preserved carefully through the winter, in two or three years its stem will become quite woody. In this state it is called the Tree Mignonette, and is supposed by many to be a different species. It is a native of Barbary, and grows wild on the sandy shore of Algiers. The name Mignonette, which is French for "the little darling," is supposed to have been given to it on account of its seeds having been first sent to England from Paris. It is rather singular, however, that it should be known by a French name in England, while in France and Germany it is known by its Latin name of *Reseda*. Mignonette should always be sown in light, sandy soil, if possible; as, when grown in a rich loam, it loses its fragrance. With a little management, it may be contrived to have Mignonette in flower every month during the year without the aid of a regular gardener. In order that the plants may flower in winter, the seed should be sown in the open border in July; or, if it be more convenient, the seeds may be sown in pots in that month, placing the pots in any situation where they will have abundance of light and air. In September the plants should be put in the pots in which they are to flower, and only a sufficient number left in each to make the pots look full without the plants being so crowded as to occasion them to be drawn up. This number must, of course, vary according to the size of the pot; but it should never exceed eight, or be less than three. The pots should then be taken into the house, and placed in any convenient situation in a room without a fire, till they have formed their flower-buds, which will be the latter end of October. They should then be removed to a window in a room where the temperature does not exceed 50° at night, when they will throw out an abundance of branches, and will continue flowering beautifully during November, December, and January; and, if they are regularly watered every day, till the following March. When it is wished to obtain a plant of Tree Mignonette, a healthy, vigorous plant of Mignonette sown in a pot in April should be selected, and the flower-buds should be taken off as fast as they appear. In autumn all the lower side shoots should be cut off, so as to shape the plant into a miniature tree, and it should be transplanted into a larger pot, with fresh soil, formed of turfy loam broken small. It should then be removed to a green-house or warm room, and by being regularly watered every day, and kept tolerably warm, it will remain in a growing state all the winter, and by spring its stem will begin to appear woody. It should be treated in the same manner the following year, all the side branches being cut off as they appear, except those that are to form the head of the tree; and by the third spring it will have bark on its trunk, and be completely a shrub. It may now be suffered to bloom, and its flowers will continue to be produced every summer for a great many years in succession.

Mignonette does best in a cool climate, our summers sometimes being too warm to grow it in perfection; but for fall flowering nothing can surpass its luxuriance, beauty, or fragrance. For this purpose sow the seed in July or early in August in a well-prepared bed of deep rich soil. It is of the utmost importance that the seeds of Mignonette, when sown in the hot months, should be well firmed. Our plan is to sow in drills two or three inches deep and eighteen inches apart. After sowing the seed it is carefully and regularly trodden down with the foot, and then raked lengthwise of the rows to make the ground level. In this way the seed will germinate in the hottest or dryest weather, while it is almost certain to fail if left loose. Thin the plants out to six inches apart each way, and from the first of September until quite cold weather there will be a profusion of flowers.

MIGNONETTE FOR CUTTING IN WINTER is most successfully grown in a span-roofed house with solid side benches. These should be thoroughly drained and heavily manured with well-rotted cow manure which should be well mixed with the soil to the depth of at least eighteen inches. The seed may be sown in rows six inches apart, directly upon the beds, about the middle of August, and thinned out from four to six inches apart, according to the strength of the variety sown. The plants thrive much better if the surface of the soil is gone over frequently and kept loose, care being taken that no chick-weed is left, as it luxuriates in the cool, rich border, and will cause no end of trouble later in the season. Water should be carefully and systematically applied, the beds thoroughly watered when necessary, and withheld till the appearance of the soil or plants indicates the need of more moisture.

To keep the stems straight and marketable a system of brushing may be adopted, using branches suitable to the height of the Mignonette. By thus keeping the plant as upright as possible, and breaking the shoots well back in picking, the last shoot gathered in June will be nearly as firm as those picked in November and December. To have sturdy, short-jointed Mignonette the temperature must be kept low, not over forty degrees at night, no matter if it occasionally touches the freezing point; plenty of air being given whenever the weather will permit. It will not mature as fast as if kept warmer, but the spikes will be all the finer, more marketable, and, of course, more valuable.

Mika'nia. Climbing Hempweed. Named after *Joseph Mikan*, Professor of Botany at Prague. Nat. Ord. *Compositæ*.

A genus of hardy and half-hardy twining plants, allied to Eupatorium. *M. scandens*, common from Long Island to Kentucky and southward, is a perennial, with axillary clusters of flesh-colored flowers. *M. violacea*, a tender species with dark, velvet-like foliage, is now much used as a drooping plant for baskets, vases, etc. Propagated by cuttings.

Mildew. The term used for the parasitical fungus so common to vegetation, both under glass and in the open air. Like nearly all other parasites hurtful to plants, it seems to us that Mildew only attacks plants when, from some cause or other, they are in an abnormal state. For instance, we find that if some varieties of Roses and Grape Vines, either under glass or in the open air, are exposed to excessive drought, so as to enfeeble the leaf action, or if exposed to a sudden change of temperature, they are

almost certain to be attacked with Mildew. Many years ago, in our green-houses at Jersey City, N. J., we had a marked instance well illustrating this belief. We had a Rose-house, on which the sashes had been slid down for ventilation; it came up suddenly cold, and before the green-house could be closed, some six or eight square spaces of 3x3 feet, where the sashes had been let down, were frozen so severely that the young shoots of the Roses hung down and we thought they were ruined. The next morning, however, they appeared all right; but in a few days after Mildew appeared in the square space (3x3 feet) with the lines nearly as closely defined as if struck out with a rule, the other portions of the Rose-house being entirely free from it. Now we reason from this incident, and others nearly as marked, that spores or germs of mildew are nearly always present, floating in the atmosphere, and that when a congenial soil, so to speak, is formed by a relaxed condition of the plant, the floating germ is sown on the enfeebled leaves, and the parasite starts into the low organic life known as Mildew. Fortunately, we have a rarely-failing antidote against Mildew. Sulphur, applied in various forms, is almost a certain specific. For Grape Vines, Roses or other plants affected by Mildew outdoors, the flowers of sulphur applied by the sulphur bellows, when used in the early stage of the attack, will at once check it; but when Mildew attacks Roses or Grape Vines under glass in winter, the best plan is to paint the hot water pipes with a wash of sulphur and lime or sulphur and guano (the guano or lime is only used to make the sulphur stick to the pipes) every eight or ten days. The fumes of the sulphur, evolved by the heated water in the pipes (about 200 degrees), is certain destruction to the germ-producing Mildew. When flues are used instead of hot-water pipes, the sulphur wash may be used on them; but care must be taken that it is only on the end of the flues farthest from the furnace, as, if much hotter than 200 degrees it will injure the leaves; but no harm can ever ensue from its use on the hot-water pipes or on the smoke flue, if not hotter than 200 degrees. At seasons when no fires are used, the following preparation will usually be found a prompt remedy against Mildew: take six pounds each of flowers of sulphur and lump lime, put together and slake the lime, adding ten gallons of water. Boil all together until it is reduced to four gallons; allow the liquid to settle until it gets clear, and then bottle for use. One gill only of this is to be mixed with five gallons of water, and syringed freely over the plants, care being taken not to let it drop on expanded flowers or ripe fruit, as its odor is very disagreeable. Mr. Chas. E. Pearson, of Chilwell, in an article on the culture of the *Chrysanthemum*, see "Journal of Horticulture," London, December, 1888, says: "If Mildew appears while the plants are outside, syringe with the following: 1 pound soap, ½ pound sulphur, and ten gallons of water, mix with boiling water, and add the remaining quantity cold; stir constantly while using. This is a perfect cure, and far before any method of dusting sulphur, etc. After they are housed, a coat of linseed oil and sulphur on the pipes is a good preventive. I have not seen a speck of mildew in all our large show houses this season, which I attribute to this precaution." This linseed oil and sulphur cure was first brought before the public some years ago by Mr. Arch. Veitch, of New Haven, Conn., in a communication to the "Gardeners' Monthly," the editor of which, Mr. Thos. Meehan, in a communication to the "Journal of Horticulture," February, 1889, says: * * "I have seen it tried over and over again, and have no hesitation in saying, that it not only prevents Mildew from appearing in a plant-house but will speedily stop its progress after it commences its ravages." It may moreover, be used on steam pipes, or on hot flues with perfect safety, the oil seeming to modify the acrid fumes of the sulphur and render them innocuous.

Milfoil. See *Achillea.*

Mi'lium. *Millet Grass.*

Milk-Thistle. *Silybum Marianum.*

Milk-Tree. See *Brosimum.*

Milk Vetch. See *Astragalus.*

Milk-Vine. *Periploca græca.*

Milk-Weed. See *Asclepias*, a name also given to *Euphorbia.*

Milk-Wort. The genus *Polygala.*

Mi'lla. Named after *J. Milla*, gardener to the Spanish Court at Madrid. Nat. Ord. *Liliaceæ.*

A genus of hardy bulbs, allied to *Tritelia* with which it is often confounded. *M. biflora*, the only cultivated species, grows freely in the open border, producing white flowers often in pairs, on a slender scape about a foot high. It flowers in July and August, continuing a long time in succession. It was introduced from Mexico in 1826, and is increased by seeds or offsets.

Millet-Grass. The common name of *Milium.*

Mille'tia. Named after *J. A. Millet*, a French botanist. Nat. Ord. *Leguminosæ.*

A genus of tall-climbing trees or shrubs, natives of Australia, and the warmer parts of Asia and Africa. *M. megasperma*, introduced from Queensland, has glossy dark green leaves and loose panicled racemes of showy purple flowers, resembling in habit the *Wistaria Chinensis.*

Milto'nia. Named after the *Earl Fitzwilliam.* Nat. Ord. *Orchidaceæ.*

This small genus stands conspicuously prominent, even in the magnificent order to which it belongs, on account of the number and beauty of its flowers. Nor are they at all difficult of management, requiring only to be treated in the manner recommended for *Lælia* or Cattleya; and when grown into a tolerably good specimen, nothing can exceed the grandeur of *M. speciabilis* or *M. candida*, the large size and delicate white of the sepals and petals, contrasted with the rich crimson marking of the expansive lip of the former, when seen in any quantity, fully equal the most showy of the order. Either or both of the above should always be included in every collection of Orchids. The genus consists of about a dozen species, all natives of Brazil; introduced in 1840.

Mimo'sa Sensitive Plant. From *mimos*, a mimic; referring to the irritability of the leaves, as if imitating animal sensibility. Nat. Ord. *Leguminosæ.*

To this genus belongs the Sensitive Plant, of which there may be said to be three spe-

cies, the leaves of all of which shrink to the touch, viz.: *M. sensitiva* and *pudica*, natives of Brazil, growing two to three feet high, with pale ball-like pink flowers; and *M. casta*, a native of the East Indies, growing about two feet high, with pale yellow flowers. *M. pudica* is the true Sensitive Plant, and the one that is usually grown, being more sensitive than *M. sensitiva*. It is cultivated as an annual, and should be raised on a hot-bed or in the green-house in spring, with the tender annuals; and either kept in pots throughout the summer, or turned out into the open border about the end of May. Many species formerly included under the genus Mimosa are now removed to Acacia; the principal distinction between the genera being that Mimosa has a jointed seed-pod, which Acacia has not. Several other genera have also been formed out of Mimosa. Some of the kinds are hot-house plants; others thrive in a green-house; and *M. marginata* (the *M. prostrata* of the nurseries) is sufficiently hardy to stand the winter at the South. They are propagated by cuttings; the annuals by seeds. A singular fact in connection with the *Mimosa pudica* is said to be, that if chloroform be applied to the plant, its sensitiveness is suspended until the effects of the anæsthetic have passed off.

Mi'mulus. Monkey Flower. From *mimo*, an ape or actor; in reference to the ringent or gaping mouth of the flower. Nat. Ord. *Scrophulariaceæ*.

This genus, among the most ornamental of our hardy and half-hardy herbaceous plants, is found dispersed over America, Asia, Australia, and Africa, but most numerous in western America. Two species have broken out into numberless varieties: these are *M. cardinalis*, and *M. luteus*, and the latter, especially seems capable of bringing a great deal of variety to the aid of the flower-gardener. All of these, and *M moschatus*, or Musk Plant, as it is called, are valuable aids in that department, and are very generally grown for the purpose, being very prolific of flowers. *M. cupreus*, introduced from Chili in 1861, is also the origin of a great number of very beautiful hybrids known as *M. maculosus*. They are all easily propagated by seeds, cuttings, or by division of the roots.

Mi'musops. From *mimo*, an ape, and *opsis*, a face; the flowers may be fancied to resemble the face of a monkey. Nat. Ord. *Sapotaceæ*.

A genus of ornamental trees with a milky juice, "the better known species of which are found in the East Indies, tropical Australia, the Cape of Good Hope, and Brazil. They are very ornamental, showy trees, with entire, smooth leaves, and small white, often sweet-smelling flowers. Several species yield hard, durable and very heavy timber, such as *M. Elengi* and *M. Indica*, in Ceylon, where the wood is used for ordinary house-building purposes, and *M. hexandra*, in the peninsula of India. A species called the Bully-tree, or Bullet-tree, in British Guiana, grows over 100 feet high, with a trunk six feet in diameter, affording a very close-grained timber of an exceedingly durable nature, being but little influenced by the weather. Its small fruits, about the size of coffee-berries, are delicious when ripe. The fruits of other species, also, are eaten in their native countries, such as those of *M. Elengi*, the seeds of which likewise afford an abundance of oil, while its highly-fragrant flowers yield their perfume to water by distillation."—A. Smith, in "Treasury of Botany."

Mi'na. A genus of *Convolvulaceæ*, containing one species, *M. lobata*, a beautiful climbing herbaceous plant, with rosy-crimson flowers, changing as they expand first to orange and then to pale yellow. Now placed by Bentham and Hooker under *Ipomea*, as *I. versicolor*.

Minia'tus. Of a vermilion color; pure red with a little yellow.

Mint. See *Mentha*.

Mint-bush, or Mint tree of Australia. See *Prostranthera*.

Mira'bilis. Marvel of Peru. From *mirabilis*, wonderful, as everything was at first considered that was sent from South America to Great Britain. Nat. Ord. *Nyctaginaceæ*.

The varieties of *M. Jalapa*, or Marvel of Peru, are valuable ornaments of the borders of the flower garden. The seed should be sown in May where they are to grow, or they may be sown for early blooming in a hot-bed and transplanted in May along with Dahlias and such plants. Their after treatment closely resembles that of the former; they should be staked and tied in the same way, and on the approach of winter their large tuberous roots should be taken up and stored away in dry sand until the following spring, when in April they may be forwarded on a moderate hot-bed, and again in May be planted into the border of the flower garden, or they may be planted at once in the border as soon as danger from frost is past. The whole of the genus are of one character, and may be treated alike. Plants from the old roots will come into flower much earlier than if grown from seed. The colors of the Marvel of Peru are various, one being pure white and very fragrant, while others are beautifully as well as curiously striped. Gerarde first notices this genus in 1596.

Mirbe'lia. Named after *C. F. B. Mirbel*, a physiological botanist of Paris. Nat. Ord. *Leguminosæ*.

This genus consists of eight or nine species of Australian shrubs, with handsome yellow, purple, or bluish flowers. A few of the species are occasionally met in the more rare collections of green-house plants. They are evergreens, producing their flowers in July, and are propagated by cuttings; introduced in 1825.

Missouri Currant. See *Ribes aureum*.

Mist Flower. See *Conoclinium*.

Mist Tree. See *Rhus cotinus*.

Mistletoe. See *Viscum album*.

Mitche'lla. Partridge Berry. Named in honor of *Dr. John Mitchell*, an early correspondent of Linnæus, and an excellent botanist, who resided in Virginia. Nat. Ord. *Rubiaceæ*.

A small genus comprising two species of glabrous creeping herbs, one dispersed through North America from Mexico to Canada, and the other a native of Japan. *M. repens*, our native species, is a low, creeping evergreen, widely distributed throughout the United States and Canada in dry woods.

The flowers are white, tinged with purple, and fragrant, the fruit is scarlet and edible, but nearly tasteless, and remains on during the winter. The Partridge is very fond of it, whence the local name. It is a pretty little plant for rockeries, hardy ferneries, and such like places.

Mite'lla. Mitre-Wort. Bishop's Cap. A diminutive from *mitra*, a cap or mitre; alluding to the form of the young pod. Nat. Ord. *Saxifragaceæ.*

A genus of hardy, perennial herbs, with stalked, roundish, cordate crenated leaves, and greenish-white flowers, often nodding, in slender many-flowered racemes. One species, *M. nuda*, occurs in Siberia, and this and the other species are natives of this country. They are admirable subjects for the rock-garden.

Mitraca'rpum. From *mitra*, a mitre, and *karpos*, a fruit; in allusion to the fruit being cut round about in the middle. Nat. Ord. *Rubiaceæ.*

A genus of erect or prostrate herbs, often with perennial roots, natives of tropical America and southern Africa. The small white flowers are produced in dense-flowered heads; the leaves are linear-lanceolate or ovate. *M. stylosum*, the only species in cultivation is a plant-stove annual. None of the other species so far as known, are of any horticultural merit.

Mitra'ria. From *mitra*, a mitre; referring to the seed pod. Nat. Ord. *Gesneraceæ.*

M. coccinea, the sole representative of this genus, is a low-growing shrubby plant, native of the Island of Chiloe. Its leaves are small, opposite, or sometimes trifoliate. The flowers are solitary, and of a bright scarlet color. It is a very beautiful plant for the green-house, or for planting out during the summer. It was introduced in 1848, and is propagated by cuttings.

Mitriosti'gma. From *mitra*, a mitre, and *stigma*; in reference to the shape of the pistil. A genus of two species, closely related to *Gardenia* with which they are usually classed. *M. axillare*, forms a compact spreading shrub with white, very fragrant, single axillary flowers. It was introduced from Natal in 1856, and is often cultivated under the name of *Gardenia citriodora.*

Moccasin Flower. The popular name of our native *Cypripediums*, from the fancied resemblance of the flower to a moccasin or slipper.

Mock Orange. See *Philadelphus.*

Mock Orange Gourd. *Cucurbita aurantia.*

Mock Privet. See *Phillyrea.*

Mode'cca. The East Indian name. Nat. Ord. *Passifloraceæ.*

A genus of evergreen climbing shrubs, resembling Passiflora in habit, but by no means so handsome. Natives of tropical Asia and Africa. The flowers are small and greenish-white. Propagated by cuttings.

Modi'ola. From *modiolus*, the nave of a wheel; referring to the formation of the seed-vessel. Nat. Ord. *Malvaceæ.*

A genus of annual and herbaceous perennials allied to the Mallow. They are mostly uninteresting plants, with low, creeping habit,

and purple or crimson flowers. Natives of the Southern States, and Brazil.

Mo'hria. Named after *M. Mohr*, a German botanist. Nat. Ord. *Polypodiaceæ.*

A genus of South African Ferns, consisting of but one species, *M. thurifraga*, a beautiful Fern with the general appearance of *Woodsia obtusa.* It makes a splendid specimen plant, and may be grown in a cool green-house. Propagated by spores.

Moldavian Balm. See *Dracocephalum.*

Moles. The common Mole (*Talpa*), is found in most parts of the country, and is well known for its curious cylindrical form, and the blackness of its velvet-like coat. The eyes are so small as to be practically useless to the animal, which is, however, possessed of acute hearing and smell. The teeth prove them to be carnivorous, and observation proves that Moles feed on insects, chiefly as larvæ, and on earth-worms. Occasionally a little vegetable matter may be swallowed along with this food. The home of the Mole is usually situated in some secure situation under a large stone or the root of a tree, and there are usually several passages diverging from it, into any of which it may retreat when danger threatens. It is probable that Moles do more good than harm when they confine their operations to the fields, but in gardens they do much damage by cutting the roots of the plants in flower borders, upheaving the soil in seed-beds, etc., and their earth-heaps render lawns very unsightly. They are unwelcome visitors to the garden, and it is necessary to remove them by the use of traps set in their burrows or runs. As they are very wary, it is needful to take special precautions against the smell of one's hands remaining about the traps.

Moli'nia. Named in honor of *J. Molina*, a writer upon Chilian plants. Nat. Ord. *Gramineaceæ.*

M. cærulea is a tall, tufted, hardy, perennial grass, with stems one to three feet in height, the variegated form of which forms an excellent decorative and bedding plant.

Mollis. Soft.

Molopospe'rmum. From *Molops*, a stripe, and *Sperma*, a seed; the fruit has the appearance of being striped. Nat. Ord. *Umbelliferæ.*

M. Cicutarium, the only species is a large vigorous-growing, handsome perennial plant, producing beautiful, finely cut, fern-like leaves, often four feet in diameter. It forms an excellent plant for large shrubberies and is very effective as a solitary plant on lawns. It is a native of central and southern Europe and is propagated by division, or by seeds sown when ripe.

Mo'ltkia. Named after Count Gadske Moltke, a Danish noble. Nat. Ord. *Boraginaceæ.*

M. cærulea, is a hardy herbaceous perennial, with beautiful blue flowers. It is a native of Persia, grows freely with ordinary garden culture, and is propagated by seeds or root division; introduced in 1829.

Moluce'lla. A genus of *Labiatæ*, of hardy, or half-hardy annuals, inhabiting the Mediterranean region. *M. lævis*, is remarkable on account of the singular form of the calyces, which are shallowly bell-shaped, and densely arranged on erect stems. It forms an excellent

subject for skeletonizing. Seeds sown in a green-house or frame can be planted out in May.

Momo'rdica. Balsam Pear, Balsam Apple. From *mordeo*, to bite; the seeds have the appearance of being bitten. Nat. Ord. *Cucurbitaceæ*.

A small genus of annual and perennial climbing herbaceous plants, with coarse leaves and inconspicuous flowers, either white or yellow. *M. charantia*, an East Indian species, is the Balsam Pear of our gardens. It has bright orange-yellow, pear-shaped fruit, from four to six inches long, and covered all over with little wart-like protuberances. When ripe the fruit splits open and turns back, and its bright red seeds give it a showy appearance. *M. balsamina*, Balsam Apple, is in all respects the same, excepting that the fruit is smaller and nearly round. This fruit in Syria is famous for curing wounds. They cut it open when unripe, and infuse it in sweet oil, exposed to the sun for some days until the oil becomes red. It may then be applied to a fresh wound, dropped on cotton. They grow best in a light rich soil, with a sunny aspect, and should be trained over a trellis or on brush.

Monadelphous. Having all the stamens united by their filaments into a tube.

Monandrous. Having only one stamen.

Mona'rda. Horse Mint. Named after *M. Monardez*, a physician of Seville. Nat. Ord. *Labiatæ*.

A genus of hardy herbaceous perennials, common from Pennsylvania to Wisconsin. They are mostly coarse growing, and of but little beauty. *M. didyma*, Oswego Tea, has bright red, showy flowers, and is sometimes cultivated under the name of *Bee Balm*.

Monarde'lla. A genus of hardy annual or perennial, pleasantly aromatic, fragrant herbs, of the natural order *Labiatæ*, much resembling *Monarda* in aspect and inflorescence, natives of North West America. They have bright colored flowers, in terminal heads, and are of easy cultivation.

Moneywort. See *Lysimachia*.

Moneywort. Cornish. *Sibthorpia Europæa*.

Moniliform. Formed like a necklace; that is to say, with alternate swellings resembling beads.

Moni'mia. Named after *Monime* the wife of Mithridates. Nat. Ord. *Monimiaceæ*. A small genus of shrubby plants, natives of the Mascarene Islands. Their leaves are opposite, entire, coriaceous, and often slightly pubescent; none of the species are in cultivation.

Monimia'ceæ. An order of trees or shrubs, natives of the warmer parts of Asia and America, Australia, and the Southern Pacific Islands. The bark and leaves are aromatic and fragrant, and the succulent fruit of some is eaten. There are over twenty genera described and over 150 species. *Monimia*, *Laurelia*, and *Boldoa*, are examples of the order.

Monkey Flower. See *Mimulus*.

Monkey Pot. See *Lecythis*.

Monkey Puzzler. A common name for *Araucaria imbricata*.

Monkey's Dinner-Bell. See *Hura crepitans*.

Monk's Hood. See *Aconitum*.

Monni'na. Named after *Monnino, Count de Flora Blanca*, a Spanish promoter of botany. Nat. Ord. *Polygalaceæ*.

A genus of about fifty species of green-house evergreen herbs, shrubs, or small trees, natives of Western America. The flowers have usually a white or yellowish corolla, and blue calycine wings. Few of the species are of any horticultural value.

Monochæ'tum. From *monos*, one, and *chaite*, a bristle; in allusion to the shape of the connective of the stamen. Nat. Ord. *Melastomaceæ*.

A genus of over twenty species, of erect, branched, often tomentose shrubs, natives of the mountains of Peru, New Grenada, Mexico, and Guatemala. They form showy plants, and are of easy culture.

Monochi'lus. From *Monos*, one, and *cheilos*, a lip; alluding to the form of flower. Nat. Ord. *Verbenaceæ*.

M. gloxinifolius, the only species introduced from Brazil in 1838 is a very pretty low-growing stove-house plant, with white flowers, remarkable for the form of its corolla. It is propagated by cuttings.

Monocotyledons or **Endogens.** One of the two great classes into which all flowering plants are divided. They are characterized as having the wood of the stem irregularly disposed in longitudinal bundles, not in concentric layers, and having no defined central pith; the leaves generally parallel veined; and the flowers with organs mostly in threes or fours, never in fives; in grasses, the parts are arranged in twos and threes. The embryo with a single cotyledon; first formed leaves alternate, the radicle not branching but throwing out adventitious roots.

Monodo'ra. From *monos*, one, and *dora*, a skin; in allusion to the fruit being one-celled. Nat. Ord. *Anonaceæ*.

A small genus of plant-stove trees confined to tropical Africa. *M. Myristica*, or Calabash Nutmeg, the only species yet introduced, has large, variegated, pendulous, sweet-scented flowers, followed by large globose woody fruit, varying in size from that of an orange, to a large melon, containing a number of seeds which abound in an aromatic oil of a nutmeg flavor, and which are commonly called Jamaica or American nutmegs. It was introduced in 1843, and is propagated by cuttings of the ripened wood.

Moncœcious. Having male and female organs in different flowers on the same plant.

Monogra'mma. From *monos*, one, and *gramma*, a writing; referring to the spore or seed-cases. Nat. Ord. *Polypodiaceæ*.

A small genus of very dwarf Ferns from the West Indies, requiring a warm green-house.

Monogynous. Having but one style, even though many carpels be present.

Monole'na. From *monos*, one, and *olene*, the arm; alluding to the process or arm from the base of the anther. Nat. Ord. *Melastomaceæ*.

A genus of fleshy, stemless, glabrous plants, with thick rhizomes, natives of Peru and Grenada. *M. primulæflora*, the only one yet introduced, is a very handsome species. It has deep, bright, pink flowers with a white eye and yellow anthers, of free growth, and is

propagated by division or by cutting up the rhizomes, and starting them in bottom heat.

Mono'lophus. A small-growing, deciduous plant, of the Nat. Ord. *Zingiberaceæ*. It has slender, leafy stems, about two feet in height, bearing distichously arranged leaves, and terminal oblong spikes of pretty bright rose-colored flowers. It is a native of India, and of quite recent introduction. Included under *Kæmpferia* by some authors.

Monolo'pia. From *monolopus*, a single covering; referring to the flower covering. Nat. Ord. *Compositæ*.

California woolly annuals, allied to Chrysanthemum. There are but two species: one, *M. major*, with yellow flowers, is rather showy; the other is a mere weed.

Mono'panax. From *monos*, one, and *Panax*; the plant resembling a Panax, and having a one-celled ovary. A genus proposed by Regel to accommodate the *Aralia Ghiesbrechtii* of gardens.

Monope'talous. Having one petal; having all the petals united by their edges.

Monophy'llous. Having only one leaf; or several leaves united by their edges into one.

Mono'psis. From *monos*, one, and *opsis*, a face; the flowers are regular, not bilabiate. Nat. Ord. *Lobeliaceæ*.

This little annual deserves far more attention than it has hitherto received. It bears a resemblance to the well-known *Lobelia gracilis*, except that its flowers are round, the segments being equal instead of bilabiate, as in Lobelia. The Monopsis requires the treatment usual for the other plants mentioned, and in the same situations has a much better effect, its flowers being of the same color, but from their form are more showy. It is from the Cape of Good Hope, and at present is seldom seen in cultivation. Introduced in 1812.

Monosepalous. Having one sepal; having all the sepals united by their edges.

Mono'tropa. The generic name of the Indian Pipe or Corpse Plant.

Monotropa'ceæ. An order of leafless herbs, parasitical on the roots of trees, principally Pines and Beeches. There are nine genera, and from ten to twelve species. *Hypopytis*, *Monotropa*, and *Schweinitzia*, are native examples of the order.

Monso'nia. Named after *Lady Ann Monson*, a correspondent of *Linnæus*. Nat. Ord. *Geraniaceæ*.

A genus of very beautiful herbaceous plants, nearly allied to the Geraniums, but with much larger flowers. Though but rarely seen, they are well worthy of cultivation, and are easily propagated by seeds, or by cuttings. First introduced from the Cape of Good Hope in 1774.

Monste'ra. Name not explained. Nat. Ord. *Aroideæ*.

A genus of climbing stove epiphytes, formerly known as *Dracontium*. Several of the species are cultivated in collections of plants with ornamental foliage. *M. deliciosa*, a Mexican species, has a succulent fruit, with a luscious pineapple flavor. It is better known among us as *Philodendron pertusum*. Most of the species have holes in their leaves at irregular intervals, and are curious and interesting

plants. They are all excellent subjects for the sub-tropical garden. Propagated by cuttings and by seeds.

Monta'noa. Named after *Montano*, a Mexican politician. Nat. Ord. *Compositæ*.

A genus of about fourteen species of ornamental shrubs, natives of North America, from Mexico to Columbia. *M. bipinnatifida* (syn. *M. heracleifolia*, *Polymnia grandis*) has large, opposite, deeply-dentate leaves, and is much used in Europe in sub-tropical gardening. It is easily increased by seeds, or root-cuttings.

Montbre'tia. Named in honor of *M. Montbret*. Nat. Ord. *Iridaceæ*.

A small genus of hardy or half-hardy bulbous plants, natives of Southern Africa. *M. Pottsii*, has bright, yellow flowers, flushed on the outside with brick-red, borne on spikes, six to nine inches long, and twelve to twenty flowered. It is perfectly hardy, as is *M. crocosmiflora*, a very handsome hybrid, raised between *M. Potsii* and *Crocosmia aurea*. The latter is a vigorous growing Iris-looking plant with scapes, a foot or more high, bearing many-flowered panicles of bright orange-scarlet flowers, from July until frost. It is one of the most floriferous and showy of autumn blooming, hardy, bulbous plants, and like the *Gladiolus* many beautiful varieties have originated from seed and are now cultivated under distinctive names. The genus is closely allied to *Ixia*, and is placed under *Tritonia* by some authors.

Monterey Cypress. *Cupressus macrocarpa*.

Moon Daisy. A common name for *Leucanthemum*, or Ox-eye Daisy.

Moon-Flower. A popular name of *Ipomœa* (*Calonyction*) *grandiflora*; applied also to *Anemone nemorosa*, and *Leucanthemum Chrysanthemoides*.

Moon-Seed. See *Menispermum*.

Moonwort. See *Botrychium* and *Lunaria*.

Moose Horn Fern. See *Platycerium Æthiopica*.

Moose-wood. See *Dirca*.

Moqui'lea. From the name of one of the species in Guiana. Nat. Ord. *Rosaceæ*.

A genus of nearly twenty species of trees and shrubs, mostly natives of Brazil. The powdered bark of *M. utilis* (the Carapi or Pottery-tree of Para), baked with an equal quantity of clay, makes vessels capable of withstanding a great amount of heat.

Moræ'a. Named after *R. Moore*, an English botanist. Nat. Ord. *Iridaceæ*.

Bulbous plants with very handsome flowers, nearly allied to Ixia, from which genus they have been removed. They are generally grown in pots. When they have done flowering, they should be kept dry till they begin to grow in spring. When planted in the open ground they should be protected from frost and heavy rains. They are natives of the Cape of Good Hope, and are propagated by offsets. Introduced in 1758. Syn. *Vieusseuxia*.

Morel. This group of Fungi, included in the genus *Morchella*, grow chiefly in woods. Several species are distinguished, all of them edible, the common Morel being esteemed for its good qualities, and regarded as a great delicacy.

MOR

More'nia. In honor of *M. Moreno*. Nat. Ord. *Palmaceæ*.

A small genus of hot-house Palms from Peru, requiring the same treatment as the *Chamædorea*, to which genus they are closely allied.

Morica'ndia. Named after *M. E. Moricand*, an Italian botanist, author of "Flora Veneta." Nat. Ord. *Cruciferæ*.

A genus of very pretty hardy annual or biennial herbs, natives of southern Europe, northern Africa and western Asia, with beautiful large rosy-purple or violet-colored flowers. Propagated by seeds, sown in spring in a warm dry situation out of doors.

Mori'na. Named after *L. Morin*, a French botanist. Nat. Ord. *Dipsacaceæ*.

A small genus of hardy herbaceous perennials. *M. longifolia*, a native of the mountains of the north of India, is a showy plant, growing two or three feet high and flowering freely from July until October. Its habit of growth resembles the *Acanthus*; the flowers resemble those of the *Verbena*, only they are larger, and produced in whorls around the stem. The general appearance of the plant is weedy.

Mori'nda. From *morus*, a Mulberry, and *Indica*, Indian; Indian Mulberry. Nat. Ord. *Rubiaceæ*.

A genus of about forty species of erect or scandent glabrous shrubs, or trees, all natives of the tropics, *M. tinctoria* has pure white flowers with a Jasmine-like fragrance; the bark of the root gives a rich red dye.

Mori'nga. Horse-radish Tree. From *moringo*, the Indian name. Nat. Ord. *Moringaceæ*.

The three species that compose this genus are green-house evergreens from north Africa, western Asia, and the East Indies. The root of one of the species, *M. pterygosperma*, is pungent and stimulant, and is used by the natives for Horse-radish. The fruit of this species is called Ben Nuts, from which is extracted a fluid oil, called Oil of Ben, used by watchmakers.

Moringa'ceæ. This natural order contains but a single genus, *Moringa*, which see.

Moriso'nia. Named after *Robert Morison* of Aberdeen, Professor of botany at Oxford in 1683. Nat. Ord. *Capparidaceæ*.

A genus of four species of West Indian and South American trees, with white axillary flowers and succulent fruit. *M. Americana*, probably the only species in cultivation, is of easy culture and is propagated by cuttings of the ripened shoots in sand; introduced from the West Indies in 1824.

Mormo'des. From *mormo*, a goblin; referring to the strange appearance of the flowers. Nat. Ord. *Orchidaceæ*.

A small genus of epiphytal Orchids, with dark purple, curiously shaped flowers, from Mexico. They are rarely met under cultivation and when grown it is more for their singularity than their beauty.

Mo'rna. Named after *Morna*, one of Ossian's heroines. Nat. Ord. *Compositæ*.

This is a small genus of beautiful half-hardy annuals, with yellow and white everlasting flowers, allied to *Helichrysum*; introduced from Swan River in 1835. They should be started in a hot-bed, and planted out in May.

MOS

Morning Glory. See *Ipomæa*.

Morono'bea. From *Moronobo* or *Coronobo*, the Carribean name of *M. coccinea*. Nat. Ord. *Guttiferæ*.

A small genus of large, slender-stemmed trees natives of the West Indies, Guiana and Brazil. *M. coccinea*, the Hog Gum-Tree has large, white, terminal, solitary flowers, and is valuable for a fluid pellucid juice which issues from incisions in the trunk and which hardens into a valuable medicinal resin. It is said that in Jamaica, hogs when injured rub themselves against the tree in order to become smeared with the juice, hence the common name.

Morphology. That department of botany which treats of the forms and modifications of the organs of the plants.

Mo'rus. Mulberry. From *mor*, the Celtic for black; referring to the color of the fruit. Nat. Ord. *Urticaceæ*.

The species of the Mulberry grow from ten to forty feet high, and are more celebrated as affording leaves upon which the Silk-worm feeds than for their fruit, which is, however, of a very grateful quality. *M. rubra*, the Red Mulberry, is very common throughout the United States, and produces the best fruit of any of the species. Charles Downing raised a seedling from *M. alba multicaulis*, which is called "Everbearing," and justly so, as it ripens its fruit earlier than any of the species, and keeps in bearing later. *M. nigra*, the Black Mulberry, is the species that was formerly cultivated for its fruit, and was an object of much attention at a very early period in the western parts of Asia and Europe. The care bestowed upon it must have been solely on account of its fruit; for the knowledge of the mode of rearing silk-worms was confined to the people of central and southern Asia till the sixth century. It is mentioned in the Psalms that the wrath of the Almighty destroyed the "Mulberry trees with frost," and this must have been recorded as a remarkable instance of the Divine displeasure; for the Mulberry is universally known not to put forth its buds and leaves till the season is so far advanced that, in the ordinary course of events, all dangers from the frost are past. We also read in the Bible that "David came upon the Philistines, and smote them over against the Mulberry trees." This species is found wild in the chains of the Caucasus and adjoining mountains, and also in Persia and Asia Minor. *M. alba*, the White Mulberry, is a native of China, and, with its varieties, is cultivated for food for the Silk-worm. Of all the varieties, *M. alba multicaulis*, is considered the best, and is the most grown in silk-producing countries. It was this variety that created such a mania in the United States about fifty years ago, when it was asserted that silk was soon to take the place of cotton, and that in all the Middle States it could be profitably produced. It is now largely grown in California for raising the Silk-worm.

Mosch'aria. From *moschos*, musk; a musk-smelling plant. Nat. Ord. *Compositæ*.

A half-hardy annual from Chili, interesting only for the fragrance of the plant; the flowers are white, but of little merit.

Moschatus. Possessing the odor of musk.

Mosquito Plant. See *Lopezia coronata.*

Moss. See *Sphagnum.*

Moss Campion. One of the popular names of *Silene*, which see.

Moss Pink. See *Phlox subulata.*

Mother of Thousands. *Linaria Cymbalaria.*

Motherwort. *Leonurus*, a worthless weed, common in neglected and waste places; also, *Artemisia vulgaris.*

Mountain Ash. See *Pyrus aucuparia..*

Mountain Cowslip. See *Primula Auricula.*

Mountain Fringe. See *Adlumia cirrhosa.*

Mountain Holly. See *Nemopanthes.*

Mountain Laurel. See *Oreodaphne.*

Mountain Mahoe. See *Paritium.*

Mountain Spinach. See *Atriplex.*

Mountain Sweet. A Canadian name for *Ceanothus Americanus.*

Mount Etna Lily. See *Sternbergia.*

Mourning Bride. See *Scabiosa.*

Mouse-ear Chickweed. See *Cerastium.*

Mouse-tail. *Myosurus minimus.*

Moutan, or Tree Pæony. See *Pæonia.*

Moving Plant. See *Desmodium.*

Mucous, Mucose. Covered with a slimy secretion, or with a coat that is readily soluble in water, and becomes slimy; resembling mucus.

Mucronate. Abruptly terminated by a hard, sharp point; thus, *mucronato-serrate* is when the serratures terminate in a hard, sharp point,

Mucu'na. Cow Itch. The Brazilian name. Nat. Ord. *Leguminosæ.*

The plants of this genus are well known to travelers in tropical countries from the exceedingly annoying character of their seed-pods, which are thickly covered with stinging hairs, easily detached by the slightest shake, and causing great irritation if they happen to fall upon exposed parts of the body.

Mud Plantain. See *Heteranthera.*

Muehlenbe'ckia. Named after *H. G. Muehlenbeck*, a Swiss physician. Nat. Ord. *Polygonaceæ.*

A genus of twining shrubs or small trees, natives of South America, New Zealand, and Australia. *M. complexa* (syn. *Polygonum complexum*) is of dense and diffuse habit, and from the distinct form and color of its foliage, together with its graceful, drooping, wire-like branches, often covered with transparent fruit, the tooth-like divisions of which hang like miniature icicles in small clusters on lateral shoots from the more ripened stems, is a most desirable plant for vases or hanging baskets. It is probably hardy, and was introduced from New Zealand in 1870. *M. platyclada* is the name now given by some to the plant known as *Cocoloba platyclada*, which see.

Mu'kia. Derivation unknown. Nat. Ord. *Cucurbitaceæ.*

A small genus of *Cucurbitaceæ*, nearly allied to *Bryonia.* They are confined to the tropics of the old world. *M. scabrella* is widely diffused. It is an annual, scabrous climbing

herb, with entire or lobed leaves, small yellow flowers and greenish fruit, half an inch in diameter, which is yellow or reddish when ripe.

Mulberry. See *Morus.*

Mulberry. Indian. See *Morinda.*

Mulberry. Paper. *Broussonetia papyrifera.*

Mulching. Placing leaves or rough litter around newly planted trees to prevent evaporation from the soil has been long practiced. Good cultivators apply leaves, rough manure, etc., to the surface of the soil to protect the roots of certain plants against the action of the frost, it being useful, not so much against freezing as to prevent alternate freezing and thawing. In strawberry culture, the mulch applied in the fall protects the roots during winter; it is allowed to remain on the bed, where, if thick enough, it keeps down weeds, and prevents the evaporation of moisture from the soil during the dry time we are apt to have between the flowering and the ripening of the Strawberry. The utility of a mulch is not confined to the Strawberry among fruits; Raspberries and Currants are much benefited by it; and the finer varieties of English Gooseberries, a fruit with which very few succeed in our hot summers, can be successfully grown when so treated. Newly planted trees, whether of fruit or ornamental kinds, are much benefited by a mulch, and its application often settles the question of success or failure. We have known a whole Pear orchard to be mulched, and the owner thought its cost was more than repaid by saving the fallen fruit from bruises. Spinach is protected in the same way, and Carnations, Pansies, Roses, and other partly hardy plants, are mulched in the same manner. The rooting of a layer is by some gardeners thought to be facilitated by placing a flat stone over the buried branch; the fact being that the stone acts as a mulch, and prevents the soil around the cut portion from drying out, and greatly favors the rooting process. Even in the vegetable garden mulching is found useful, especially with Cauliflowers, which find our summers quite too dry. The material of the mulch is not of much importance; mostly one kind of litter will answer nearly as well as another. The material will be governed in great measure by locality; those living near salt water will find salt hay, as hay from the marshes is called, the most readily procured; those who live near Pine forests use the fallen leaves, or Pine needles, as they are called; in the grain-growing districts straw is abundant, and nothing can be better; it can be applied more thoroughly if run through a cutter. Leaves are Nature's own mulch, and answer admirably, if there is danger of their being blown away, brush laid over them, or even a little earth sprinkled on them, will keep them in place. One of the best materials to use for summer mulching is the green grass mowed from lawns. This, applied to the thickness of two or three inches around the roots of all kinds of small fruits, will be found not only to greatly benefit the crop, particularly in dry weather, but will save greatly in labor by preventing the growth of weeds. Stable manure, particularly that of cows, is extensively used in Rose growing in winter, two or three inches of which is placed over the soil, whether they are grown

MYOSOTIDIUM NOBILE.

MYOSOTIS DISSITIFLORA.

MUSA ENSETE.

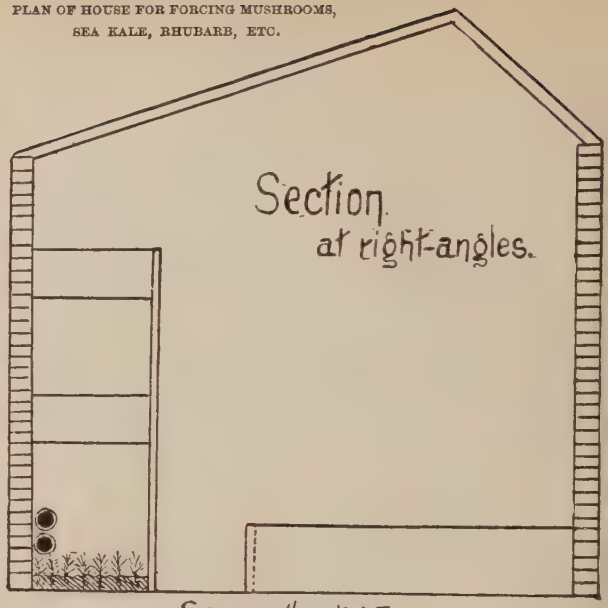
MYOSOTIS PALUSTRIS.

MYRSIPHYLLUM (SMILAX).

MUSCARI BOTRYOIDES.

MUSHROOM (AGARICUS CAMPESTRIS.)

PLAN OF HOUSE FOR FORCING MUSHROOMS, SEA KALE, RHUBARB, ETC.



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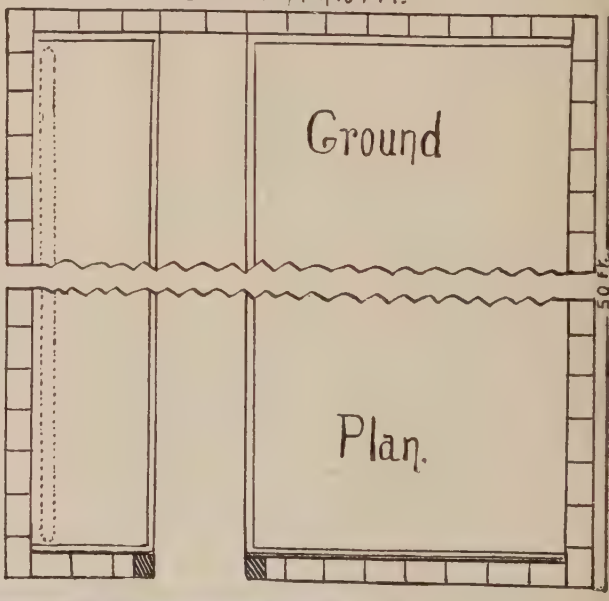

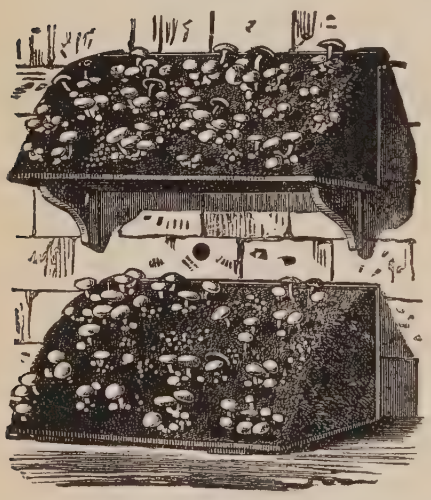

MUSHROOMS ON SHELVES.

MUSHROOMS IN BEDS.

in pots or on benches; Moss mulching is also used for this and other purposes.

Mullein. See *Verbascum.*

Multifid. Divided half-way into many parts or segments.

Munti'ngia. Named after *Abraham Munting,* Professor of Botany at Grœningen, 1626–1683. Nat. Ord. *Liliaceæ.*

M. Calabura, the only described species, is a handsome small evergreen shrub, with white flowers resembling those of the Bramble. An infusion of its leaves is used as tea in Caraccas, whence it was introduced in 1690.

Mura'ltia. Named after *John Von Muralt,* a Swiss botanist, 1645–1733. Nat. Ord. *Polygalaceæ.*

A genus of about fifty species of green-house much-branched shrubs, natives of South Africa. *M. Heisteria,* the species best known to cultivation, has small, purple, axillary flowers, and, under good treatment, is almost perpetually in bloom. It was introduced in 1787, and is propagated by cuttings of the young wood.

Muricate. Covered with short, sharp points, as in *Panicum muricatum.*

Mu'rraya. Named after *Professor Murray,* editor of *Linnæus's* works. Nat. Ord. *Rutaceæ.*

A small genus of hot-house evergreen trees from India, Java, and China, producing showy white flowers, which are very fragrant.

Murucu'ja. The name of the species in Brazil. Nat. Ord. *Passifloraceæ.*

A small genus of green-house climbers, with showy scarlet or purple flowers. The genus was formerly included in *Passiflora,* and should in all respects be treated the same. Natives of Brazil.

Mu'sa. Banana or Plantain. Named in honor of Antonius Musa, the physician of Augustus. Nat. Ord. *Scitamineæ.*

The representative species of this interesting and useful genus are *M. paradisiaca,* the Plantain, and *M. sapientum,* the Banana. The latter has its stems marked with purple spots, and its fruits are shorter and rounder than those of the Plantain, and are red and yellow in color, but otherwise the two plants are little different one from the other. The fruit of the Plantain is smaller and angular, and yellow in color. "They have been cultivated from the most remote times in tropical climates, in sub-tropical Asia, America, Africa, and the islands of the Atlantic and Pacific Oceans, for the sake of their fruits, which they produce in enormous quantities, with very little attention. There are several varieties, the fruits of which differ in color and taste. The starch in the unripe fruit becomes converted, as it ripens, into mucilage and sugar. They are highly nutritious, and serve as the staple food of a large number of the human race. Though less nutritious than wheat or potatoes, yet the space occupied by their culture and the care required are so very much less, that Humboldt has calculated the produce of Bananas compared to that of Wheat as 133 to 1, and to that of Potatoes as 44 to 1. Plantain meal is obtained by powdering the dried fruit. It is very nutritious, as it contains not only starch, but proteine or flesh-forming material. The fruits of the Plantain are stated by chemists to be most nearly allied in composition and nutritive qualities to the Potato, and the Plantain meal to Rice. The natives in many parts of India live almost entirely on Plantains, and the stems, laden with fruit, are made use of at wedding festivities, in token of plenty." The Banana is not known in an uncultivated state. The wildest tribes in South America, who depend upon this fruit for subsistence, propagate the plant by suckers. Eight or nine months after the sucker has been planted, the Banana begins to form its clusters, and the fruit is ready for picking in two or three months thereafter. When the stalk is cut, the fruit of which has ripened, a sprout is put forth, which again bears fruit in three months. The whole labor of cultivation that is required for a plantation of Bananas, is to cut the stalks laden with ripe fruit, and to give the plants a slight nourishment once or twice a year by digging round the roots. The yield per acre, with the little or no care bestowed, is between fifty and sixty tons of ripe fruit. The Banana is often cultivated in the green-house. *M. Cavendishii* is the best for this purpose; it is a dwarf species, from China, rarely growing more than six feet high, and is exceedingly ornamental. In a warm house it ripens its fruit to perfection, and the flavor is far superior to that which is found in our markets, which is picked quite green, and ripened in holds of vessels or in fruit stores. *M. superba* and *M. Ensete* have foliage of magnificent proportions, and are often grown on the lawn as ornamental plants. *M. coccinea,* a native of Cochin China, has spathes of a bright-scarlet color, tipped with yellow, and is a very ornamental plant in a stove or warm green-house.

Musca'ri. Grape Hyacinth. From *moschos,* musk; the smell of the flowers. Nat. Ord. *Liliaceæ.*

A small genus of bulbous plants, with small white or blue globular flowers, in racemes, at the end of a simple stalk. They only require planting where they can remain many years without being disturbed. Though natives of middle Europe and the Mediterranean region, they have become naturalized in many parts of the United States. On the east end of Long Island some fields are literally blue with the flowers in early spring. From their peculiar fragrance, the plant is often called "Baby's Breath."

Musci. An important tribe of Cryptogams, comprising the true Mosses.

Mushroom. *Agaricus campestris.* The great interest now being taken in Mushroom culture in the United States has induced us to treat the subject as fully as the limits of our space will permit. Mushrooms may be grown either in a house specially erected for the purpose, in cellars, out-houses, sheds, under green-house stages, tables, or, as in France and other parts of the world, in caves or other subterranean places, as light is not necessary to their growth. There is a peculiar interest in Mushroom culture to the amateur or beginner, from the fact that, while in all other cultivated plants we have something tangible to start with—either plants, seeds, or roots—we have neither, here, as far as the naked eye can see; for the white mouldy substance

called *spawn* is not easily imagined to be either, though we know, by the use of the microscope, that the germs or spores are to be found in countless numbers on the "gills" of the fully-developed Mushroom, and these, without doubt, when falling in a congenial "soil," form the *spawn* which we plant to develop the Mushroom. But an extended botanical or physiological inquiry is not necessary to the subject of culture. As there is no necessity for light in Mushroom culture, the usual method of growing them, where there is a green-house, is to use the sheds used for potting, packing, or for covering the boiler pits; and the portion of them used for Mushroom growing is generally four feet from the back wall, starting on the floor of the shed with the first bed, the additional beds being formed of shelving of the same width, and from twelve to fifteen inches deep, raised one above another to the top of the wall, like steamboat sleeping berths. Of course, if the shed is used for growing Mushrooms exclusively, these beds will be formed in the middle and front of the shed, leaving say three feet walks between each tier of Mushroom beds; for example, if the shed is eleven feet wide, it will give two Mushroom beds four feet wide on each side, with a three-feet walk in the centre; or if twenty-two feet wide, the beds for Mushrooms should be four feet wide at front and rear, with an eight-feet bed in the centre, and three feet walks all around, the eight-feet bed being accessible from the walks on either side. When a Mushroom bed is made under the green-house bench, the bench must be made of slate or other material, to prevent the water getting through, otherwise Mushrooms could not well be raised under it. The bed must also be formed under such benches as have no pipe or flues under them, as the heat from such near to the bed would be hurtful. Where there is a superfluity of cellar-room, there is no better place to raise Mushrooms, as the cool moisture of the atmosphere and the uniform temperature of the cellar is more congenial to the growth of this vegetable than structures above ground. The beds may be formed of the size and depth above recommended; or, where portable Mushroom beds are wanted, boxes may be used of the requisite depth and of convenient size. The temperature of the apartment where Mushrooms are to be grown during the winter months should range from 55° to 65°, and, consequently, it would be useless to attempt to grow the crop in the winter months unless artificial means were used to keep the temperature to that height; for though the manure in the beds were up to 80° when first made, it would only partially raise the temperature of an unheated building in winter. Probably the best time to begin making the beds for a crop wanted in winter is during August and September, as at that season the temperature is high enough to cause the spawn to germinate freely, so that the first beds made in August will give the first crop during December; those in September, in January or February; and so on. The following plan, given in our work, "Gardening for Profit," has been extensively practiced for the past fifteen years, with rare instances of failure, even by those who never before attempted the culture of the Mushroom:

"Let fresh horse droppings be procured from the stables each day, in quantity not less, perhaps, than a good barrowful. To every barrowload of droppings add about the same *weight* (which will be a little less than one-third in bulk) of fresh loam from a pasture, or sod land of any kind, in fact, that has not been manured; the danger of old manured soil being, that it may contain spurious *fungi*. Let the droppings and soil be mixed together day by day as the droppings can be procured. If they can be had all at once in quantity enough, so much the better. Let the heap be turned every day, so that it is not allowed to heat violently, until you have got enough to form the bed of the dimensions required. Be careful that you keep it under cover, so that it cannot possibly get wet. Now, from the prepared heap of droppings and soil, spread over the bed a thin layer; pound this firmly down with a brick, and so on till it reaches a depth of eight inches. Be careful that it is not more nor less than eight inches; more will cause the mass to heat too violently, while less is hardly enough. Into this bed plunge a thermometer; in a day or two the bed will heat so that it will run up to 100° or over; and as soon as it declines to 90°, take a dibble, or sharp stick, and make holes three or four inches deep all over the bed at twelve inches each way; into each hole put a piece of spawn about the size of a hen's egg, covering up the hole again with the compost, so that it will present the same level, firm surface as before the spawn was put in. Let it remain in this condition for about ten or twelve days, by which time the spawn will have 'run' through the whole bed. Now spread evenly over the surface of the bed nearly two inches of fresh loam; firm it down moderately with the back of a spade, and cover up the bed with three or four inches of hay or straw. This completes the whole operation of 'planting the crop.' Nothing now remains to be done but to attend to the proper degrees of heat and moisture. If you can control the means of heating, so that the place can be kept uniformly at a temperature of 60°, all the better; if not, it may range from 40° to 60°. It should never get below 40°, else the bed will become cold and delay the crop until too late in the season to be profitable. Unless the air of the house has been unusually dry, the Mushrooms will appear before any water is required; but examination should be made, and if the surface of the bed appears dry, a gentle sprinkling of water, heated to about 100°, must be given. With this treatment, beginning in August, our first crop is ready for use in December; while beginning in September, the crop should be ready in January and February. The Mushrooms do not come up all at once, but from three to four weeks will be needed to get off the first crop. After this, a slight dressing of fresh soil about half an inch in depth is spread over the bed, and again beaten down with the spade; this is gently watered with tepid water when dry, and a second crop of Mushrooms (often better than the first) is gathered in March or April. To show how a simple oversight in our operations may defeat the whole work, I will state that in my first attempt at Mushroom growing I labored for two years without being able to produce a

single Mushroom. In my apprentice days I had known no such word as fail in so simple a matter; but here, on my first attempt, on my own responsibility, I was met by total failure. Every authority was consulted, all the various methods tried, but with no better success. In all such cases something must be blamed, and I pronounced the spawn worthless; but this could not well be, as a friend had abundant crops growing from spawn received from the same source. Driven into a corner by this information, I made another exploration of my 'authorities,' and was fortunate to find in one of them a single sentence that at once showed where my error had been; it was to 'be careful to delay the covering with mould until ten or twelve days after the bed had been spawned.' Now, in all the different methods I had tried, I had in each invariably put in the spawn, and at once put on the two-inch covering of soil, which had the effect to shut down the steam, thereby raising the temperature in the bed to a degree that destroyed the spawn, and consequently defeated my whole operations. My excuse for this digression is to show the importance of what might otherwise be thought unnecessary details. Although spawn is procurable at cheap rates in all horticultural stores, yet to such as desire to make it themselves, I give the following brief directions: Take equal portions of horse droppings, cow dung, and fresh loam, and mix the whole thoroughly together, as you would make mortar; then form it into cakes about the size of large bricks; place these on edge, under cover, until they become half dry; then insert into each a piece of spawn half an inch or so square, and let the bricks remain until they are quite dry; then spread about eight inches of horse dung over the floor of the shed, on which build the bricks in a pile three feet wide by three feet high, keeping the side in which the spawn has been put uppermost; then cover them over with sufficient stable manure, so as to give a gentle heat, not exceeding 100°, through the whole. In two or three weeks the spawn will have spread itself through the whole mass of each brick; they are then removed to a dry place, and will retain their vital properties for many years. There is not the least question that the cultivation of Mushrooms for market, forced in the manner detailed, will give a larger profit for the labor and capital invested than that from any other vegetable. The supply has never yet been half enough, and sellers have had prices pretty much as they pleased. I know of no house that has been especially erected for the purpose, and the markets have been supplied from beds formed in out-of-the-way corners, giving only an uncertain and irregular supply, very discouraging to buyers. I have no doubt whatever that Mushroom houses, roughly built, but exclusively devoted to that purpose, would, in the vicinity of any of our large cities, pay a profit of fifty per cent. per annum on the cost of construction."

The following article was written to a request made by me to John G. Gardner, Jobstown, N. J., who has been eminently successful as a grower of Mushrooms.

"Having been interested in the culture of Mushrooms for the past fifteen years, both in

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England and in this country, and having read almost everything written on the subject, besides having had ample experience every year, growing them successfully in various ways, under green-house benches, in cellars, and in houses constructed especially for Mushroom culture; it is only after close study that I have been able during the last three years to produce enough in quantity to compensate for the expense attending their culture. Starting with these facts uppermost in my mind—that I could not realize Mushrooms enough in value as an equivalent of labor and material expended, and that at some future time I might have to grow them for market, I concluded that I must become more familiar with the conditions of their development, and closely watched from day to day all stages of operations, until the Mushrooms appeared upon the surface of the beds.

"The first serious drawback I saw, was the falling off after two or three weeks of the quantity gathered, and upon examining the beds I found abundance of spawn in thread-like form looking healthy, and Mushrooms already formed upon the ends of the threads, but only a few developed, ninety per cent. becoming brown in color after showing upon the surface the size of small peas. Now I was at a loss to know the cause of this falling off; with the spawn in perfect health, and as some of the beds in the same house having had exactly the same treatment, spawned and commenced bearing at the same time were still bearing well, being positive also that the atmospheric conditions had not been changed, and that the beds were moist enough, I came to the conclusion that the food of the Mushroom had been all absorbed, and nothing left to develop the thread-like forms into Mushrooms, and that what was needed was food prepared in a soluble form that I could apply at this stage of falling off. I had read that the Mushroom abounds in nitrogen, and that this substance must be a necessary element, but in what form did the Mushroom take it up? I knew also that from beds that would not ferment although in a house of the proper temperature, I could not get a crop, so it appeared clear to me that fermentation was the means of preparing the nitrogen, causing it to take the form of ammonia, and that in this state it became soluble, and fit for plant food. At once then I saw this to be the cardinal point—that this ammonia must be retained in the beds, that the labor of turning and drying the material, and all the foundation that took place in the manure was a loss, as the nitrogen escaped in the form of ammonia, but until some other material than horse-stable manure be used for the beds (and I believe it will be practical in the near future to use other material), there will be a loss of ammonia from the beds by fermentation in different stages. I have been experimenting with sphagnum moss and cocoanut fibre, using hot water to get the proper temperature to produce the spawn in an active state, and covering with soil, charged with ammonia, I have been successful in raising healthy Mushrooms.

"In October, 1886, being satisfied with the result of my experiments, and feeling certain that I had mastered the fundamental part of 'Mushroom Culture,' I made a radical

change in my operations, which I give in detail. First, however, I will give some idea of my house. It had been a storage cellar for roots, 60x24 feet, with a cement floor, and below ground level. I had six rows of 2½ inch pipe put in to keep up a proper temperature in severe weather, tore out all the shelves and benches of the old system, and formed the bed on the floor. I received the manure by the cars from New York, and had it unloaded and carted at once, making the bed the same day, passing the manure through openings in the walls, and levelling it to an even depth of fifteen inches. The next day I had soil from the vegetable garden, a rich mellow loam, carted and put on to the depth of three inches over one half of the bed, lengthwise in the house. The other half of the bed I had forked up loosely three inches in depth, so as to dry and ferment as quickly as possible, throwing open all the windows and doors. In twelve days after making the bed in the part that had no soil upon it, I cut drills with a hoe sixteen inches apart and two inches deep lengthwise of the house, to receive the spawn, 'leaving drills uncovered two days.' Finding the temperature in the bottom of the drill to be 95°, and the bed below getting dry, I took soil by hand, and spreading a little thinly in the bottom of the drill, I put in the spawn, which was in cake form, broken into pieces the size of a small egg, then moistening it in each drill by a sprinkler, I partially closed the house, so as to hold a warm damp moisture over the spawn. On the second day, finding the temperature falling, I pulled the manure loosely over the spawn with a rake, and placing a thermometer at the same depth as the spawn, I found next morning the temperature to be 90°. I then tamped the bed down to a level surface, and passing the soil from the other part of the bed upon the spawned part, I forked up the surface loose, and threw the house open again to dry the bed ready for spawning, which was in half the time of the first part. When spawned half the soil was passed over again and the whole surface made even and tamped down firmly. In five weeks I gathered Mushrooms, and continued to do so until the following May, when the warm weather set in and the Maggot played havoc with them in all stages. The soil was thoroughly charged with ammonia as it lay upon the surface of the bed during the whole fermentation, and furnishing the food for the Mushroom. The moisture of the house was kept up by fermenting manure in oil barrels, which were recharged as they cooled off. The temperature was kept at 57°, as nearly as possible; other artificial heat by steam or flue heating would have answered nearly the same purpose.

"For growing Mushrooms in fruit-houses such as a peachhouse or grapery, I use hot-bed sashes, forming the frames with boards, making the beds directly upon the soil of the border. These beds I form with the manure as soon as received, making them one foot in thickness, and treading down firmly. I then spread one and a half inches of soil evenly over the surface, and fork up an inch or so of the manure with it, intermixing it slightly so as to prevent the soil forming a cake-like surface; I then add two inches of manure, which is left loose on the top of the bed. I find that the soil lessens the fermentation near the surface, and that a large amount of the ammonia is gathered in the loose manure which is much cooler and damper than the body of the bed below the soil. I spawn at a temperature of 90° to 95°, placing the spawn in drills one foot apart and two inches deep, using one and a half bricks to a sash 6x3 feet, finishing with one and a half inches of soil direct from the vegetable garden. I find when fresh manure is formed into beds, that when the fermentation is ceasing, the manure becomes nearly dry, so that there is no danger of raising the temperature when the beds are soiled directly after spawning. The sashes are then put on, each one being tilted an inch or so to let out the moisture given off by the beds, so as to keep the soil dry upon the surface until the Mushrooms appear, after which the soil must be kept moist, the supply of air being regulated so as not to allow it to become dry. Strong light, or sun's rays must be kept off the sashes to keep an even temperature, as a sudden raise of 10° would be of great detriment to the young Mushrooms near the surface. I spread half a peck of soil charged with Ammonia under each sash over the surface of the bed every two weeks, after gathering has commenced, which should be in from five to six weeks. Frames made up in this way will bear good crops from November to April.

"REMARKS. Mushroom spores will reproduce themselves in fourteen days, from dry spawn put into active state, so in case where the beds have been found dry, after fermentation has ceased, which is often the case if not watched closely; after having been spawned two weeks, take a watering pot with a fine sprinkler and water the surface so as to penetrate about two inches with water at 90 degrees, at the same time raising the temperature of the house 10 degrees. Mushrooms will then appear in from five to six weeks.

"BEST TEMPERATURE for Mushroom-house 57 degrees.

"BEST CONDITION. Moist only to a perceptible degree, the surface soil kept damp by watering moderately with clear water, of a temperature of not less than 80 degrees, applied with a syringe or a watering-pot with a fine sprinkler. To have the beds packed solidly, as recommended by a great many growers, is a mistake, as the thread-like spawn, cannot travel freely enough through the material of the bed—have the beds firm only. For storing spawn in a dry state, with which to spawn other beds, it is best to have it in solid material as it will handle better than in flakes.

"ATMOSPHERE. The best means to keep the atmosphere of a Mushroom-house moist, is to place a few barrels of fermenting manure in the house, changing them when cooled off. This will obviate running the risk of getting the beds too wet from the syringe or watering pot.

"VENTILATION. The passage of air must be from the top, and must be fully under control at a temperature not below 45 degrees on entering the house. Avoid all currents of air on the surface of the bed when in bearing.

"HEATING. Use hot-water pipes as little as possible, and only when the house drops below 55 degrees. Hot-water pipes within eight inches of the bed will damage the Mush-

rooms. Keep a temperature as near 57 degrees as possible, a sudden change of ten degrees higher or lower will have a bad effect."

MUSHROOMS ON PASTURE LANDS, ETC. A simple method of growing Mushrooms on pasture lands or on lawns is to take pieces of spawn—about the size of a hickory-nut—and lift the sod with a trowel or spade, just sufficient to get the spawn under it and then press it down tight. Set the pieces of spawn one to two feet apart. Three or four dollars' worth of spawn, which can be got from any seedsman, is sufficient for an acre.

The best time to place the spawn under the sod is from middle of May to middle of June, and in a favorable season a fair crop can be expected the following September, or in three or four months from time of planting.

Musk Mallow. See *Malva.*

Muskmelon. *Cucumis melo.* See *Cucumis.*

The cultivation of the Muskmelon was carried on at a very remote period. It is said to be a native of the central part of Asia, and to have been brought into Europe from Persia; but the date of its first culture is so remote that there is no certain knowledge on the subject. It appears to have been brought into Italy early in the first century, if not before, as it is mentioned by Pliny, who died from suffocation caused by the great eruption of Vesuvius in A. D. 79. In his works he describes the methods by which Melons were grown or forced, so as to be obtained for the Emperor Tiberius at all times of the year. Of the Melon there are many varieties. Of the various classes of Melons, one of the oldest and best is the Cantaloup, which, according to M. Jacquin, derives its name from Cantalouppi, a seat belonging to the Pope, near Rome, where this sort, brought from Armenia by the missionaries, was first cultivated. The flesh of this, with its varieties, is yellowish or pink. The Nutmeg and Citron varieties, which are the more common in our markets, are supposed to be the African or Egyptian Melons of the early writers. The Melons of Persia have long borne a high character, and differ materially from the varieties commonly cultivated. They are extremely rich and sweet, and instead of the thick rind of the common melons, they have a very thin and delicate skin, which makes a fruit of the same apparent size contain nearly twice as much edible flesh. From this peculiarity they are difficult to handle and ship; and they are likewise more difficult of culture, requiring a long, warm season to ripen to perfection. The most popular Melon of the New York markets is the "Hackensack," a green-fleshed, finely netted variety, cultivated in immense quantities in the vicinity of Hackensack, N. J.

Musk-Plant. See *Mimulus Moschatus.*

Musk-Thistle. *Carduus Nutans.*

Musk Tree, or Musk Wood. *Eurybia* (*Aster*) *argophylla.*

Musquash Root. One of the popular names of *Cicuta maculata.*

Mussæ'nda. The *Cingalese* name of one of the species. Nat. Ord. *Rubiaceæ.*

A small genus of tropical evergreen shrubs. *M. frondosa* is a very pretty species, with terminal clusters of yellow flowers, surrounded by bracts of pure white, which give it a very singular appearance. The leaves of some of the species are esteemed for their medicinal properties. *M. uniflora* is a vigorous, free-flowering, handsome plant, suitable for basket culture. They are natives of the East Indies, and are propagated by cuttings. Introduced in 1814.

Mu'sschia. Named after *J. H. Mussche,* once Director of the Botanic Garden at Ghent. Nat. Ord. *Campanulaceæ.*

A small genus of perennial herbs or small shrubs, natives of the Island of Madiera. *M. aurea* is a fine herbaceous perennial, bearing its rich, golden-yellow flowers in erect, loose panicles. Introduced in 1777. Syn. *Campanula aurea.*

Mustard. See *Sinapis.*

Mustard. Hedge. See *Erysimum.*

Mustard Tree of Scripture. Supposed to be the common Mustard-plant (*Sinapis alba,* or *nigra*), which in Palestine is said to attain the height of ten to fifteen feet. The late Dr. Royle endeavored to prove that *Salvadora Persica* was meant, but this tree does not grow in Galilee.

Muticous. Pointless.

Muti'sia. Named after *C. Mutis,* a South American botanist. Nat. Ord. *Compositæ.*

A small genus of ornamental green-house climbing plants, natives of South America, chiefly confined to the Andes of the West, and especially of Chili. The flowers are produced in terminal heads or clusters, and are mostly of a pink, purple, or yellow color. They require a warm place in the green-house. Propagated by cuttings. Introduced in 1832.

Myce'lium. A word equivalent to spawn, denoting the negative part of *Fungi,* the greater part of what most readily attracts attention being frequently merely the fructification. The vegetative part of a mushroom, for instance, is represented by the delicate white down and strings which traverse the soil, the fruit is the stem, pileus, and gills, which we call the mushroom. Fungi, except the lowest forms, are made up chiefly of long, slender threads, composed of rows of cells placed end to end: these threads usually branch, and are interwoven so as to form a tissue that seems frequently composed of cells united in the way observed among other plants, though really only a false, soft, cellular tissue.

Mygi'nda. Named after *Francis von Mygind,* a German botanist. Nat. Ord. *Celastraceæ.*

A small genus of glabrous or pilose shrubs, natives of tropical America and Chili. *M. latifolia,* the best known species, has small white flowers in bunches at the ends of the branches. It was introduced in 1795, and is propagated by cuttings of the ripened wood.

Myloca'ryum. Buck-wheat Tree. From *Myle,* a mill, and *karyon,* a nut; the dry seeds have four wings like a windmill. Nat. Ord. *Cyrillaceæ.*

M. ligustrinum, the only species is a half-hardy, evergreen shrub, with terminal racemes of white fragrant flowers. It is a native of the Southern United States, and succeeds best here in the cool green-house. It is propagated by cuttings of the half-ripened shoots. This plant is now named *Cliftonia ligustrina* by many botanists.

MYO

Myopo'rum. The typical genus of *Myoporaceæ*, consisting of upwards of fifteen species of shrubs chiefly from Australia. Flowers often white, small or medium. They are increased by cuttings, but few of the species are in cultivation.

Myosoti'dium Nobile. The only representative of the genus is a very handsome, hardy, or nearly hardy herbaceous perennial, resembling a gigantic Forget-me-not, and belonging to the same natural order, *Boraginaceæ*.

It is difficult of cultivation and seems to do best in a cool, damp, sheltered situation,

Myoso'tis. Forget-me-not. From *mys*, a mouse, and *otos* an ear; resemblance of the leaves. Nat. Ord. *Boraginaceæ*.

A genus of hardy and half-hardy annuals and perennials, comprising numerous European, northern Asiatic, and one or two native species. The herbaceous species succeed best in moist places, but all may be grown in pots, provided they are kept well watered. They are usually grown, however, in cold frames like Pansies. *M. dissitiflora* is a handsome species, from Switzerland, closely allied to *M. sylvatica*, with large, deep sky-blue flowers, and larger in all its parts than the latter. It is one of the best sorts for winter blooming, and succeeds best grown in a cool house like Mignonette. *M. palustris*, the true "Forget-me-not," is a well-known hardy perennial from six to twelve inches high, flowering in a cool moist position all summer. *M. Azorica* with its variety known as *Imperatrice Elizabeth*, form beautiful branching bushes, six to twelve inches high, covered with numerous heads of bluish-purple flower. It is a native of the Azores, and is not so hardy as the other species, but is very useful for green-house decoration in the winter and spring months. They are all readily propagated by division, or by seed.

My'rcia. A mythological name. Nat. Ord. *Myrtaceæ*.

A very large genus—over three hundred species—of trees or shrubs, all natives of tropical and sub-tropical America. The flowers are small, and very few of the species are in cultivation.

My'rica. Bayberry, Wax Myrtle, Sweet Gale. From *myrio*, to flow; found on the banks of rivers. Nat. Ord. *Myricaceæ*.

A genus of green-house evergreen and hardy shrubs. The former are not much grown. Of the latter *M. cerifera* is a shrub common to New York and the Atlantic coast, growing four to eight feet high. The foliage has a pleasant fragrance, and is used to a large extent in mixing with flowers used in summer bouquets. In New England the wax which invests the berries is collected in considerable quantities. It is obtained by boiling the berries in water, when the wax melts and rises to the surface. Under the name of Bayberry tallow it is often used to make candles, either alone or mixed with tallow; it is also employed in soap-making.

Myrica'ceæ. A natural order of trees or shrubs with resinous glands, alternate leaves and unisexual flowers. They inhabit temperate and tropical countries, and have aromatic, tonic, and astringent properties. The order contains but one genus and about thirty-five species.

MYR

Myrica'ria. From *murike*, the Greek name of the Tamarisk. Nat. Ord. *Tamaricaceæ*.

Of the several species that are included in this genus, *M. Germanica* is the only one of special interest. It is a hardy evergreen shrub from six to eight feet high, with very narrow, flat leaves, and long spikes of delicate pink flowers. It is indigenous throughout most parts of Europe and the Caucasus. It is of easy culture, and very ornamental. Propagated by cuttings of young shoots, either in spring or autumn.

Myriophy'llum. Water Milfoil. From *myrios*, a myriad, and *phyllon*, a leaf; division of the leaves. Nat. Ord. *Haloragaceæ*.

An extensive genus of hardy aquatic plants, allied to *Hippuris*. The several species are common in ponds and ditches throughout the United States. *M. spicatum* makes a desirable plant for the aquarium.

Myri'stica. Nutmeg. From *myristikos*, sweet-smelling. Nat. Ord. *Myristicaceæ*.

M. moschata or *fragrans*, a beautiful branching tree, growing about thirty feet high, produces the Mace and Nutmegs of commerce. It is principally grown in the Banda Isles, though common in Java and the Molucca Islands. The male and female flowers are on different trees. The flowers of both are small, white, bell-shaped, and without any calyx; the embryo fruit appearing at the bottom of the female flower in the form of a little reddish knob. The female flowers grow on slender peduncles, two or three together, but it is rare that more than one flower in each bunch comes to maturity and produces fruit; this resembles in size a small peach, but it is rather more pointed at both ends. The outer coat is about half an inch thick when ripe, at which time it bursts at the side and discloses the spices. These are, the Mace, having the appearance of a leafy net-work of a fine red color, which seems the brighter by being contrasted with the shining black of the shell that it surrounds. This is laid to dry in the shade for a short time, but if dried too much a great part of its flavor is lost by evaporation. On the other hand, if packed too moist, it either ferments or breeds worms. The Nutmeg is contained in a shell somewhat harder than that of the filbert, and could not in the state in which it is gathered be broken without injuring the nut. On that account the nuts are successively dried in the sun, and then by fire heat, till the kernel shrinks so much as to rattle in the shell, which is then easily broken, and the Nutmeg released. After this process, they are several times soaked in sea-water and lime, and then laid in a heap, where they heat and get rid of their superfluous moisture by evaporation. This process is pursued to preserve the substance of the nut, as well as to destroy its vegetative power. When perfectly cured they are packed in dry slacked lime, and sent to market.

Myristica'ceæ. A natural order of trees and shrubs, natives of the tropical regions of Asia and America, Madagascar, Africa, with one representation in Australia. *Myristica* the only genus furnishes the well-known Nutmeg and Mace of commerce, and contains about eighty species.

Myrobalan Plum. See *Prunus cerasifera*.

Myrobalans. See *Terminalia*.

Myro'dia. From *myron*, myrrh, perfume, and *osme*, a smell. Nat. Ord. *Sterculiaceæ*.

A genus of South American trees or shrubs, with an aromatic odor. There are seven species described of which *M. turbinata* is the only one yet introduced. Its flowers are white and very fragrant, otherwise it is of little horticultural interest. It is of easy cultivation, and is propagated by cuttings of the half-ripened shoots.

Myrospe'rmum. From *myron*, myrrh, an aromatic balsam, and *sperma*, a seed; the seeds yield a strong-smelling resin. Nat. Ord. *Leguminosæ*.

This is the genus which produces the Balsam of Peru, used in perfumery and in the preparation of lozenges. They are all from South America, and closely allied to *Myroxylon*, and are mainly interesting for the drugs they furnish.

Myro'xylon. Tolu Balsam Tree. From *myron*, myrrh, and *xylon*, wood; the wood is resinous and sweet-scented. Nat. Ord. *Leguminosæ*.

A genus of about six species of evergreen trees, natives of tropical America. *M. Toluiferum* (Tolu Balsam-bearing), the most important species, is a large spreading tree, with very thick, rough, brown bark. The balsam flows from incisions made in the bark during the hot season, its smell is extremely fragrant, somewhat resembling the lemon, and its taste is warm and sweet.

Myrrh. An aromatic, medicinal, gum-resin, yielded by *Balsamodendron myrrha*, a native of Arabia Felix. See also *Myrrhis*.

My'rrhis. Sweet Cicely or Myrrh. From *myrrha*, myrrh; in allusion to the scent of the plants. Nat. Ord. *Umbelliferæ*.

M. odora, the only species of interest, is a very graceful-looking plant with finely cut foliage, and an agreeable odor. It is still used in salads in Italy. Native of the mountains of Europe and the Caucasus region.

Myrsina'ceæ. A natural order of trees, shrubs or under-shrubs of variable habit, natives of Africa, Asia and America, and said to abound chiefly in islands with an equable temperature. Little is known of their properties. There are over thirty genera and five hundred species. *Myrsine*, *Ardisia*, *Theophrasta*, and *Jacquinia* are examples of the order.

My'rsine. The old Greek name given by Dioscorides to the myrtle. Nat. Ord. *Myrsinaceæ*.

A genus of about eighty species of shrubs or small trees, mostly evergreen, natives of Asia, Africa, and tropical America, a few being indigenous in Japan, Australia, and New Zealand. The berries of *M. Africana*, a species widely dispersed over Africa and occasionally to be seen in green-house collections, are said to be mixed with barley by the Abyssinians as food for their asses and mules. Syn. *Sideroxylon*, *Manglilla*, and *Samara*.

Myrsiphy'llum. Smilax. From *myrsine*, a myrtle, and *phyllon*, a leaf; resemblance of the leaves. Nat. Ord. *Liliaceæ*.

M. asparagoides, the well-known Smilax of the florist, is a native of various parts of the Cape of Good Hope. It was first introduced into England in 1702, but was soon discarded. It was again introduced by Mr. Cooper about 1861, who sent it to Kew, where it flowered, and from whence it was disseminated. It is now one of the essentials of a florist's stock; in fact it is of greater importance than any flower, if we except the Rose. It is of easy culture, as may be inferred from the fact that it is treated in about as many different ways as there are growers. Sow the seed in the green-house in boxes of light rich soil in January or early in February. As soon as the plants are three inches high, prick them out first into shallow boxes, and again into thumb pots when established, and grow on in any convenient place, even partially under benches, where little else would grow. When required shift into three-inch pots, and grow on until about the first of August, and then plant out in the bed where they are to grow, at about six inches from plant to plant, and twelve inches between the rows. This is about the right distance when strings of six or nine feet are used to train on; if higher the plants may be set farther apart. By the first of January following, they will have made a growth of eight or ten feet, and be ready for cutting. A second growth will at once commence, and a crop secured by March or April. When the second crop has been cut, give it a partial rest, clean the bed off, enrich with a light top dressing, and put up the strings for the next year's growth, which will commence in August or September. When growing freely it may be liberally supplied with manure water once a week and syringed once a day. This treatment never fails of giving at least two good cuttings a year; and with a succession of plantings a supply can be had at all times of the year. The strings used should be of a green color, so that in festooning they may not be seen. Although a crop is often taken after the last cutting in April, we prefer to use the space in spring for other purposes, and plant the young plants of Smilax each year, beginning the first planting in August, as above mentioned. From August to October a light shading should be used on the glass. We find nothing better than naphtha mixed with a little white lead, so as to give it the color of thin milk. This shading can be put on with a syringe in a few minutes. It costs only twenty-five cents for each thousand square feet of glass, and we consider it the best shading for all green-house operations. One important caution in growing Smilax must be given; it will not stand tobacco nor any other kind of smoke or gas, the leaves quickly getting yellow. If infested by the Aphis (Green Fly) tobacco must be used in the liquid state by steeping the stems till of the color of strong tea. When other plants require to be fumigated in the same house with Smilax, to save the Smilax from injury, it should be first freely syringed, as the smoke will then not hurt the leaves. The same plan should be used with Heliotrope, or any other plants the leaves of which are susceptible to injury from fumigation.

Myrta'ceæ. A natural order of trees or shrubs, natives chiefly of warm countries, as South America and the East Indies; many, however, are found in more temperate regions, and some of the genera are peculiar to Australia. Many yield an aromatic volatile oil, some, edible fruits, and others furnish astringent and saccharine substances. The leaves of certain species of *Leptospermum*, and *Melaleuca*, are used as tea in Australia. Pimento, or Allspice is the berried fruits of *Eugenia*

Pimenta, a tree of the West Indies and Mexico. The flower buds of *Caryophyllus aromaticus*, constitute the Cloves of commerce. Guavas are the fruits of species of *Psidium*. *Punica Granatum*, yields the Pomegranate. The species of *Eucalyptus*, are the gigantic Gum or Fever-trees of Australia. The order is a very extensive one, containing about one hundred genera, and fifteen hundred species.

Myrtle. See *Myrtus*.

Myrtle. Sand. *Leophyllum buxifolium*.

Myrtle. Wax or Candleberry. *Myrica cerifera*.

My'rtus. From *myron*, signifying perfume. Nat. Ord. *Myrtaceæ*.

A genus of beautiful evergreen shrubs, natives of Europe, Asia, South America, and some of them of New Holland. The common Myrtle, *M. communis*, of which there are eight or ten very distinct varieties, is too well known to require any description. It is not surpassed in beauty of foliage by any exotic shrub, and the flowers are of a pure white, and, like the leaves, fragrant. The fragrance arises from an oil which is secreted in little cells, which appear as dots when the leaves are held up to the light. The handsomest varieties of the common Myrtle are the Roman, or broad-leaved, the broad-leaved Dutch, the narrow-leaved, and the double-flowered. *M. Nummularia*, a native of the Falkland Islands spreads over the ground like common Thyme. *M. Ugni* (syn. *Eugenia Ugni*), introduced from Valdivia in 1845, forms a very pretty, cool green-house plant, with white flowers succeeded by red or black glossy fruits, which, when ripe, are highly flavored and emit an agreeable perfume. It is quite hardy in the Southern States. All the species are readily propagated by cuttings of the partially ripened shoots.

N.

Nabee. The Bish or Bikh. A powerful Indian poison obtained from *Aconitum ferox*.

Næge'lia. Named after Karl Nægeli, an eminent German botanist. Nat. Ord. *Gesneraceæ*.

This genus was formerly included with *Gesnera*, of which the type is the well-known *G. zebrina*. They are deciduous green-house plants natives of Mexico. The leaves are oval-shaped, of a green color, and have a velvety appearance, being thickly covered with short crimson hairs, which give them a rich velvet-like hue. They have erect racemes of large, showy flowers, mostly bright scarlet. They are propagated and cultivated the same as recommended for *Gesnera*.

Nagkesur. See *Mesua*.

Na'ias. From *Naias*, water nymph. A genus giving its name to the order *Naidaceæ*. All the species are little branching herbs, growing under water and are only of botanical interest.

Naidaceæ. Pond-weed Family. A natural order of plants living in fresh or salt water, widely distributed over the globe, and of but little horticultural interest. There are about sixteen genera and over one hundred species; *Aponogeton*, *Nais*, and *Triglochin* are examples.

Nail-wort. A common name for *Paronychia*, which see.

Naked Seeds. Seeds having no pericarpal covering, as in Conifers and Cycads.

Na'ma. From nama, a stream of water; alluding to their natural habitat. Nat. Ord. *Hydrophyllaceæ*.

A genus of annual or perennial herbs or shrubs, natives of northwest America and Mexico. The species are not much cultivated. *N. Parryii*, the best known, introduced to cultivation from California in 1881, is a half-hardy herbaceous plant, with lilac-purple flowers in dense clusters, on terminal branched panicles. It is propagated by division or by cuttings.

Nancy Pretty. A common English name for *Saxifraga umbrosa*.

Nandi'na. From *Nandin*, the name of the shrub in Japan. Nat. Ord. *Berberidaceæ*.

N. domestica, the only representative of the genus is a handsome, erect, half-hardy green-house shrub, with ternately-compound leaves and terminal compound panicles of white flowers with yellow anthers, followed by round, red berries, about the size of peas. It is a native of China and Japan where it is extensively grown; it is also a favorite ornamental plant in the Southern States where it is now thoroughly domesticated. It was introduced to cultivation in 1804, and is propagated by cuttings of the well-ripened wood.

Na'nnorhops. From *nannos*, dwarf, and *rhops*, a bush; in reference to the low growth of the plant. Nat. Ord. *Palmaceæ*.

N. Ritcheana, the only described species, is a low, unarmed, plant-stove palm, with a tufted, creeping caudex. The leaves of this plant are used in India for the manufacture of fans, sandals, baskets, etc. It is propagated by offsets or by seeds.

Nano'des. From *nanodes*, a pigmy. Nat. Ord. *Orchidaceæ*.

A small genus of very dwarf, rare and beautiful Orchids, natives of Brazil and the West Indies. *N. Medusæ*, the principal one under cultivation, is thus described by B. S. Williams, in the "Orchid Growers' Manual." "This is a very rare, most extraordinary, and beautiful plant, very distinct in habit from any other Orchid I have seen. There is no bulb to support it, only a woody stem with light green leaves on both sides, which are about three inches long; flowers large, terminal, produced two or more together; sepals and petals light green, tinged with brown; lip large and spreading, deeply fringed round the margin, rich maroon in color, except towards the base, where it is green. It requires to be grown on a block, or

NARCISSUS INCOMPARABILIS (DOUBLE).

NARCISSUS CYCLAMINEUS.

NELUMBIUM (SACRED LOTUS).

NARCISSUS HORSFIELDI.

NARCISSUS BULBOCODIUM.

NARCISSUS (TRUMPET MAJOR).

NARCISSUS ALBUS PLENUS ODORATUS.

NASTURTIUM (DWARF).

NARCISSUS POLYANTHUS (PAPER WHITE).

NIEREMBERGIA RIVULARIS.

NASTURTIUM OFFICINALE (WATER CRESS).

NEMOPHILA.

NARCISSUS (VAR. "SIR WATKIN").

in a basket with moss and peat, and kept very cool, as it is a native of the higher Andes of western South America."

Nanus. Dwarf.

Napiform. Turnip-shaped.

Napoleo'na. Named in honor of the *Emperor Napoleon.* Nat. Ord. *Myrtaceæ.*

A very singular genus of shrubs, natives of western tropical Africa, whose place in the natural system is a contested point among botanists. "Among the most remarkable plants that have hitherto been discovered ranks this rare species. It forms a bush about as large as a *Camellia,* and some idea of the structure of its flowers may be formed when we state that the species has been referred to the natural order *Passifloraceæ* by some botanists, and to *Cucurbitaceæ* by others."—Paxton. Whitfield, a botanical collector, brought with him in 1843 from Sierra Leone, dried specimens and living plants, one of the latter of which, flowering a few years later, cleared away all uncertainty as to its location in the natural system. The propagation of this plant may be effected by cuttings, and in other respects its treatment should resemble that of the *Gardenia.*

Narci'ssus. Name of a youth said to have been changed into this flower. Nat. Ord. *Amaryllidaceæ.*

In this genus of ornamental, usually hardy bulbous plants, we have a long list of established favorites, remarkable alike for the elegance, fragrance, and precocity of their flowers. The majority of them will thrive in almost any soil or situation, though they will succeed best in a thoroughly drained, tolerably rich soil, and if the position is one partially shaded from the hot sunshine in spring, the flowers will retain their beauty for a much longer period than if more fully exposed. The hardy sorts, when grown in the open borders, should be planted in September in newly-dug, well-manured ground at a depth of three inches, reckoning from the top of the bulb to the surface of the soil. This will not be too much for any, except, perhaps, the Jonquils, which, from having smaller bulbs, may be placed an inch shallower. When planted in beds and it becomes necessary to remove them to make room for other plants it should be done as soon as their beauty is past. As the bulbs are by no means mature at this time, they should be "laid in" in some slightly shaded place until the foliage is quite withered, when they may be taken up, dried, and stored away until wanted for the next planting season. Narcissi are well adapted for planting in the herbaceous or shrubbery border, or in the grass by the sides of woodland walks, in open spaces between trees and shrubs, in cemeteries, or in any situation where the flowers may be readily seen on their appearance in spring. The foliage should be allowed to ripen naturally before being removed, at which time an annual top-dressing of loam and decayed manure may be applied with advantage. Varieties of Polyanthus Narcissus are very extensively cultivated in pots for green-house decoration, as well as for the use of their highly-fragrant flowers in a cut state. The instructions given for the culture and management of the Hyacinth will be found in every way applicable to the Narcissus (see Hyacinth). Of those most commonly grown for forcing, we prefer the following: Soliel d'or (yellow, with orange cup), Gloriosus (white, primrose cup), States General (white, with citron cup), Grand Primo (white, with citron cup), and Grand Monarque (white, with pale yellow cup), with the Double Roman (yellow) and Paper White. Double and single sweet-scented Jonquils, *N. Jonquilla,* are very fragrant when in flower, and are well adapted for pot culture, as is also the early variety of the Poets' Narcissus, *N. poeticus ornatus.* The Paper White Narcissus, *N. Tazetta,* is forced in immense quantities by the florists of New York and other large cities, and, next to the Roman Hyacinth and Tulip, is the bulb most extensively grown for this purpose. When grown on a large scale, they are planted in boxes of soil four inches deep at a distance of three to four inches apart, and treated as described for Roman Hyacinths. The hardy varieties of Narcissus or Daffodils, of which large quantities are now used, are forced in the same manner, it being imperative for their success that they be well rooted in the boxes or pots before being brought into heat, as, if they are insufficiently rooted, failure will result. To be in proper condition to force, the pots or boxes should be matted around with the roots. The most reliable single varieties for forcing are Trumpet Major (yellow), Trumpet Minor (yellow trumpet and white perianth), Obvallaris (the famous Tenby Daffodil, rich yellow), and Poeticus Ornatus (white); of double varieties, Incomparabilis (yellow and orange), Pseudo Plenus, or Lent Lily (yellow and white), and Von Sion (all yellow). Of double whites, Alba plena odorata is the best. For out-doors all of the above are desirable, and in addition many others, such as Horsfieldi, Scoticus, Sir Watkin, Pallidus præcox, Leedsii, the varieties of Bulbocodium, Orange Phœnix, etc.

Nardosta'chys. From *Nardos,* a sweet-scented shrub, and *stachys,* a spike; the Nardus of the ancients was close akin to this plant. Nat. Ord. *Valerianiaceæ.*

This genus comprises two species of hardy perennial herbs, natives of the Himalayas. The flowers are arranged in dense, small heads, rosy-purple in color. The root is short, thick, fibrous, and very fragrant. The only species introduced is *N. Jatamansi,* which is now generally acknowledged to be the Spikenard of the ancients.

Narthe'cium. From *narthex,* a rod; referring to the flower-stems. Nat. Ord. *Juncaceæ.*

A small genus of hardy herbaceous, Iris-like rushes, well adapted to moist places in the mixed border. *N. ossifragum,* a native species, produces lively spikes of deep golden-yellow flowers in July and August. It is popularly known as Bog Asphodel.

Na'rthex. The ancient Greek name given by Dioscorides to Asafœtida. Nat. Ord. *Umbelliferæ.*

A genus of tall-growing plants, the most notable of which is *N. Asafœtida,* a native of Western Thibet, Persia, etc. "It seems certain from the researches of Falconer and others, that this plant produces some of the Asafœtida of commerce, while *Scorodosma fœtida,* a gigantic umbelliferous plant, found in the sandy steppes east of the Caspian, as well as some other allied plants, also furnish

the drug. On cutting into the upper part of the root, a juice exudes which hardens by exposure, and is collected and sent to this country from Bombay. The drug is well known for its disgusting odor, which it seems has charms for some people, as the Persians and other Asiatics use it as a condiment."—Dr. Masters, in "Treasury of Botany." The plant is closely allied to *Ferula* under which genus it is placed by Bentham and Hooker.

Naso'nia. From *naso*, a nose; in allusion to the column. Nat. Ord. *Orchidaceæ*.

N. punctata, the only species that constitutes this genus, is a very beautiful little epiphytal Orchid, a native of Peru. It is dwarf-growing plant, with small green alternate leaves. The flowers are large, cinnabar-red, with the centre of the lip yellow, and are produced from the axils of the leaves on a short scape.

Nastu'rtium. Water Cress. From *nasus*, the nose, and *tortus*, tormented; referring to the hot, acrid smell. Nat. Ord. *Cruciferæ*.

This genus consists principally of dwarf, uninteresting, weedy looking plants. *N. officinale* is the well-known Water Cress, a native of Great Britain. It has become naturalized here, and is common near springs, or open, running water courses. The culture of Water Cress is still comparatively little known in the United States, and as the subject was very fully treated in our vegetable work, "Gardening for Profit," in 1874, we here quote from that work at length, believing that little else is needed for a full understanding of its cultivation. "This is a well-known hardy perennial aquatic plant, growing abundantly along the margins of running streams, ditches and ponds, and sold in immense quantities in our markets in spring. Where it does not grow naturally it is easily introduced by planting along the margins of ponds or streams, where it quickly increases, both by spreading of the root and by seeding. Many a farmer, in the vicinity of New York, realizes more profit from the Water Cresses cut from the margin of a brook running through his farm, in two or three weeks in spring, than from his whole year's hard labor in growing Corn, Hay, or Potatoes. Water Cress can be best cultivated in places where the streams run through a level tract. Supposing the streams to be a foot deep on an average and six or eight feet wide, running through a meadow, a good plan for cultivation is to make excavations laterally, say in beds five feet wide (with alleys between five feet) to a depth of about eight inches, or deep enough to be flooded by the stream when it is of average height, or, when shallow, by damming it up so as to flood the beds. The advantage of having the beds excavated at right angles to the stream rather than parallel with it is, that in the event of freshets the crop is less liable to be washed away. The length and number of the beds excavated must, of course, be determined by circumstances. Water Cress seeds germinate freely in earth when kept saturated; hence the beds, when properly leveled and pulverized by digging and raking, should be slightly flooded (enough to saturate the soil only when the seeds germinate); for, of course, if the beds were filled up with water the seeds would be washed off.

After the seedlings have started so as to show green, the water may be gradually let on as they develop. Probably the best time of sowing the seed would be, for the latitude of New York, about the middle of August. When Water Cress is found growing naturally, the beds can be made by setting the plants six or twelve inches apart each way. When the cultivation is once fairly begun there is no difficulty about forming new beds, as few plants grow more rapidly when proper conditions are present. If the crop is planted or the seed sown by the middle of August, it will have spread all over the beds by November. The streams being full in autumn, the beds will be fully flooded, so as to protect the plants during winter. It is always found wild growing best in clear, shallow, slowly-running water with a sandy or gravelly bottom; and as Nature is always the surest guide to successful cultivation, the nearer she can be imitated the better the success. I find it is one of the plants the culture of which is not very easy to give by writing, as so much must be determined by the circumstances of locality. Whenever a suitable stream is at command the experiment of growing Water Cress is worth trial, especially when we know that it, in many cases, pays for a given area six or eight times more than any other vegetable cultivated, provided it can be sold in the markets of New York or Philadelphia. It is usually sold in baskets, containing about three quarts, which sell, when first in market, at one dollar each; and 200 or 300 such are carried in an ordinary wagon, so that from a single load of this simple vegetable, $200 to $300 are realized. The Water Cress has a particularly pleasant pungent taste, agreeable to most people in early spring. It is said, that when Sir Joseph Banks first arrived in England after his voyage around the world, among the first things he asked for were Water Cresses, well knowing their value as a purifier of the blood; and that he afterward presented one of the largest Water Cress growers for the London market a Banksian Medal, for energy shown in the business, believing that, while he had benefited himself, he had benefited the community. I have no doubt whatever that in situations where irrigation could be used at pleasure, and regular plantations made as for Cranberries, if grown in this way (judging from the enormous price they sell at, picked up as they are in the present hap-hazard way), at present prices, an acre would sell for four thousand or five thousand dollars.

The name of this genus is frequently misapplied to the common forms of *Tropæolum*.

Natal Plum. *Arduina grandiflora*.

Natans. Floating under water.

Naturalized. Introduced from a foreign country, but growing perfectly wild, and propagating freely by seed.

Nau'clea. From *naus*, a ship, and *kleio*, to enclose; the half-capsule is hull-shaped. Nat. Ord. *Rubiaceæ*.

A genus of trees and shrubs, natives of tropical Asia and the Malayan Islands. *N. Gambir*, or *Uncaria Gambir* yields the Gambir or Terra Japonica of commerce. Among the Malays, its chief use is as a masticatory in combination with the Areca-nut and the Betel-

leaf, but considerable quantities are exported to China and Europe for tanning the finer kinds of leather. It is also used by dyers and curriers. Two or three species are in cultivation, but they are of no horticultural value.

Naumbe'rgia thyrsiflora. A synonym of *Lysimachia thyrsiflora.*

Navarre'ttia. Derivation of name unknown. Nat. Ord. *Polemoniaceæ.*

Mostly coarse hardy annuals, with blue flowers, from California. They are allied to *Ipomosis*, and should have the same treatment. The genus is now included under *Gilia* by some botanists.

Navelwort. See *Cotyledon*

Navicular. Boat-shaped, the same as Cymbiform.

Neapolitan Violet. (*V. o. pallida plena*). A variety of *Viola odorata.*

Nebulose. Clouded.

Neck. The upper tapering end of bulbs is called the neck, as in Crinum, Amaryllis, etc.

Necklace Tree. See *Ormosia.*

Neck-Weed. A popular name for *Cannabis sativa* or Hemp.

Necta'ndra. From Nektar, and *ander, andros*, a male (stamen); in reference to the three nectariferous barren stamens. Nat. Ord. *Lauraceæ.*

A genus of about seventy species of trees or shrubs natives of tropical America, from Brazil and Peru, as far as Mexico and the West Indies. The species most worthy of notice is *N. Rodiæi*, the Bibisi tree, or Green-heart of British Guiana, the timber of which is largely imported for ship-building.

Nectar. The honey, etc., secreted by glands, or by any part of the corolla.

Nectariferous. Honey-bearing, or having a nectary.

Ne'ctarine. *Persica vulgaris var. lævis.* The Nectarine is almost identical with the Peach; both owe their origin to one and the same parent, *Persica vulgaris*, and in growth, habit, and general appearance they are almost identical. Most botanists consider them the same species; the only difference between the two being in the skin, the Nectarine having a smooth and the peach a downy one. The fruit, however, is rather smaller, and is one of the most wax-like and exquisite of all productions for the dessert. They are, perhaps, scarcely so rich in flavor as the finest peach, but have more piquancy, partaking more of the peach-leaf flavor. Their identity has often been confirmed by fruit of both sorts being produced not only on the same tree, but on the same stem; and instances are recorded of the same occurring in one fruit, one side of which was downy like the Peach, the other smooth like the Nectarine. Nectarines, however, usually produce Nectarines again, on sowing the seeds, but they occasionally produce peaches; the Boston Nectarine was a seedling from a Peach stone. The French have always considered them the same, and designate them as smooth and downy peaches. The Nectarine is a little more shy of bearing in this country than the Peach, but this arises almost always from the destruction of the crop of fruit by the *Curculio*, the destroyer of all smooth-skinned fruits in sandy soils. It is quite hardy wherever the Peach will thrive, though it will not generally bear large and fine fruit unless the branches are shortened in annually, about one half of their length. With this easy system of pruning, good crops are readily obtained wherever the *Curculio* is not very prevalent (see *Curculio*). The culture of the Nectarine is in all respects similar to the Peach (which see). The following is a good selection of choice varieties for a small garden: Violet Hative one of the very best, of delicious flavor, hardy and productive; Elruge, Hardwicke, Boston, Roman, and New White.

Nectarosco'rdum. Honey Garlic. From *nectar*, honey, and *skorodon*, garlic, referring to honey-pores in the flower of this onion-like plant. Nat. Ord. *Amaryllidaceæ.*

This genus of bulbs is allied to the *Allium*, and was formerly called *Allium siculum.* It is a very curious, hardy bulb, throwing up a flower scape three to four feet high, quite slender, with a cluster of long, pendulous, green or purplish flowers. It grows freely in a light soil, and flowers in June. Introduced from Sicily in 1832. It is increased by offsets.

Nectary. An organ which secretes honey; an old name for petals and other parts of the flower when of unusual shape, especially when honey-bearing. So the hollow spur-shaped petals of Columbine were called nectaries; also the curious, long-clawed petals of Monkshood.

Needle-and-Thread, Adam's. A popular name for *Yucca filamentosa.*

Needle-shaped. Long, slender, and rigid, like the leaves of a Pine.

Negro Corn. A West Indian name for *Dhoura.*

Negro's Head. *Phytelephas macrocarpa.*

Negu'ndo. Box Elder, Ash-leaved Maple. Derivation of name unknown. Nat. Ord. *Aceraceæ.*

A genus of hardy, native, deciduous trees, allied to the Maple. *N. aceroides* (syn. *fraxinifolium*) is common in Pennsylvania, and South and West. Its variety, *N. a. foliis argenteis variegatis*, is one of the handsomest variegated trees under cultivation in England, but in the dry, hot climate of the United States, though a native, it is rarely seen in perfection, the leaves burning up under our hot, scorching sun. The leaves are beautifully marked white and green, and it is a plant of rapid and vigorous growth. There are several varieties, but none so good as the above. *N. Californicum* is found in valleys of the lower Sacramento River and the interior valleys of the coast ranges of the San Bernardino Mountains. The wood is occasionally used in manufacturing furniture, etc.

Nei'llia. Named after *Patrick Neill* of Edinburgh, Scotland, secretary of the Caledonian Horticultural Society in the early part of this century. Nat. Ord. *Rosaceæ.*

A genus of hardy branching shrubs, natives of northern India, Java, and North America. Two species are in cultivation, both from the Himalayas, bearing terminal racemes of white flowers in June, and forming excellent plants for shrubberies, etc.

NEJ

Ne'ja. A small genus of *Compositæ*, consisting of about six south Brazilian perennials, or under-shrubs, with yellow flower-heads. *N. gracilis* is a compact, free-flowering little plant, and has a very neat appearance in the borders. Propagated by seeds or division.

Neli'tris. From *ne*, privative, and *elytron*, a seed case; in reference to the berry being without any partitions. Nat. Ord. *Myrtaceæ*.

A genus of shrubs or small trees, natives of tropical Asia and Australia. Only one or two species are in cultivation.

Nelso'nia. Named in honor of *D. Nelson*, the botanist who accompanied Captain Cook. Nat. Ord. *Acanthaceæ*.

A small genus of plants distributed over tropical and sub-tropical regions in both the Old and New Worlds. The species consist of diffuse tomentose herbs, and are but little cultivated.

Nelu'mbium. Nelumbo, Sacred Bean. From *Nelumbo*, the Cingalese name of *N. speciosum*. Nat. Ord. *Nymphæceæ*.

This genus contains several beautiful species, all aquatic plants growing in ponds and slow-running streams. *N. speciosum* is the Sacred Bean or Sacred Lotus of India. It is a native of both the East and West Indies, China, Japan, Persia, and Asiatic Russia. According to Thunberg, it is esteemed a sacred plant in Japan, and pleasing to their deities, the images of their idols being often represented as sitting on its large leaves. The worship of the Lotus was common with the ancient Egyptians; it is not now, however, to be met with on the Nile. Herodotus described the plant with tolerable accuracy, comparing the receptacle of the flower to a wasp's nest. Sculptured representations of it abound among the ruins of Egyptian temples, and many other circumstances prove the veneration paid to this plant by the votaries of Isis. The Chinese have several varieties, the most beautiful being the rose-colored flowering one. They have always held it in sacred regard. That character has not, however, limited it to merely ornamental purposes, for the roots are not only served up in summer with ice, but they are also laid up with salt and vinegar for the winter. The leaves are covered with a fine microscopic down, which, by retaining a film of air over the upper surface, prevents it from being wetted when water is poured on it, the water rolling off in drops; this has a very pretty appearance, the drops of water looking like drops of molten silver. The Hindoos have a proverb founded on this peculiarity of the leaves, to the effect that the good and virtuous man is not enslaved by passion nor polluted by vice; for though he may be immersed in the waters of temptation yet, like a Lotus leaf, he will rise uninjured by them. *N. luteum* (*Yellow Nelumbo* or *Water Chinquapin*) is a very beautiful species, with yellow flowers from six to ten inches in diameter, common in the Western and Southern States. It has been introduced, probably by the Aborigines, into the Delaware near Philadelphia, and also in some parts of New Jersey and Connecticut. It may be grown in a large tub, or in a tank, in the same manner in which the white Pond Lily is often grown.

Nelu'mbo. See *Nelumbium*.

NEP

Nemasty'lis. From *nema*, a thread, and *stylos*, a column; referring to the slender style. Nat. Ord. *Iridaceæ*.

A genus of half-hardy bulbs, natives of Mexico and the southern United States. They can be grown quite successfully, if treated in the same manner of *Ixias* and *Sparaxis*. There are three species in cultivation—*N. geminiflora* (syn. *N. acutus*) and *N. purpureus*, from Texas, and *N. cœlestinus*, from Florida. All are of dwarf growth with showy blossoms, which, however, are fugacious, though produced continuously.

Nemata'nthus. From *nema*, a thread, and *anthos*, a flower; in allusion to the pendant, thread-like peduncles on which the flowers are suspended. Nat. Ord. *Gesneraceæ*.

A genus of green-house evergreen trailing plants, with large scarlet flowers, singly, in the axils of the leaves. It requires a warm, humid atmosphere, in which it is a rapid grower. It is a native of Brazil. Introduced in 1841.

Neme'sia. A name applied by Dioscorides to denote an allied plant. Nat. Ord. *Scrophulariaceæ*.

A small genus of low-growing annuals from the Cape of Good Hope. They have opposite or whorled leaves, and terminal racemes of white and purplish tinted flowers. They are of but little interest.

Nemopa'nthes. Mountain Holly. From *nemos*, a grove, and *anthos*, a flower; it being generally found in groves. Nat. Ord. *Aquifoliaceæ*.

N. Canadensis, the only species, is a beautiful hardy shrub, indigenous to the mountains from Virginia to Maine, Wisconsin and northward. It was formerly called *Ilex Canadensis*, and is popularly known as Mountain Holly. It forms a handsome, much-branched shrub, from four to six feet in height, with small white flowers, which are succeeded in autumn by large, beautiful crimson berries. It is increased by seeds or by layers.

Nemo'phila. From *nemos*, a glove, and *phileo*, love; the plants delight in a shady situation. Nat. Ord. *Hydrophyllaceæ*.

A small genus of very beautiful hardy annuals from California. *N. insignis*, is a beautiful border plant with lovely blue flowers, and should be grown in a moist, partly shaded situation. The seed should be sown very early in spring. The Nemophilas make fine pot plants for flowering in the green-house in winter; and for this purpose the seed should be sown early in the fall, and the plants kept rather cool in winter.

Neo'ttia. From *neottia*, a bird's-nest; referring to the interlacing of the numerous roots. Nat. Ord. *Orchidaceæ*.

A genus of hardy and green-house terrestrial Orchids of but little interest and rarely cultivated.

Neotto'pteris. From *neottia*, a bird's-nest, and *pteris*, a fern; founded on the Bird's Nest or Spleenwort Fern. *Linn.* Nat. Ord. *Polypodiaceæ*.

A genus of very interesting Ferns from New Zealand and the East Indies, found in all good collections, now included under *Asplenium*.

Nepentha'ceæ. A natural order of curious shrubs or sub-shrubs inhabiting tropical Asia, Madagascar, tropical Australia, New

Caledonia, and especially the Malayan Archipelago. *Nepenthes*, the only genus comprises upwards of thirty species.

Nepe'nthes. Pitcher Plant. From *nepenthes*, grief-assuaging; its supposed medicinal quality. Nat. Ord. *Nepenthaceæ*.

Among the many curious forms which abound in the vegetable kingdom, perhaps few arrest more general attention than do the members of this genus. The extraordinary appendage to the apex of each leaf has obtained for it the appropriate appellation of the Pitcher Plant. Connected with the point of the leaf, by means of a long, pendant, strap-like ligament, hangs a hollow tube, sometimes of the color and consistence of the leaf, shaped much in the manner of some antique vase, which will hold from half a pint to nearly a quart of water, and extending over the mouth of which is what may be readily likened to a lid, the whole hanging loosely by the strap before mentioned, and appearing only as though provided by a beneficent Providence to catch and preserve the dews of heaven for the supply of the animal population of the sultry clime from which it is obtained. In cultivation, the species require very similar treatment to what is usual for East Indian Orchids. They are of an upright, slender habit, requiring some support to their flexible branches; and for this purpose light iron rods should be fixed to the pot or basket in which they are grown, and circular hoops afford the easiest means of fastening the leaves and pitchers in their respective places. Turfy peat, with an equal quantity of Sphagnum moss, appears to be the most proper medium for their roots and with a damp atmosphere of about 80° in summer they grow vigorously. The necessary reduction of heat and moisture in winter must be observed with these as with all other plants. *N. distillatoria*, the first introduced species is still in cultivation though it has been superseded in size and beauty by many later introductions. *N. Rafflesiana*, like many others has two kinds of pitchers, those on the lower leaves being bladder-shaped, with two fringed wings in front, about four inches long by two wide and beautifully spotted with rich brown; while those on the upper leaves are less beautifully colored, a good deal longer, and funnel-shaped, narrowing gradually to the base where they gracefully curve upward. *N. calcarata*, *N. Hookeriana*, *N. Northiana*, *N. lanata*, *N. Veitchii* (syn. *N. sanguinea*), and *N. Rajah* with pitchers a foot or more long, are a few of the number of species introduced of late years, while the hybridizer has given us many varieties of equal, if not greater beauty and interest. The genus is distributed throughout Borneo, Sumatra and the adjacent islands of the Indian Archipelago. Increase is had by cuttings, or by separating the offsets produced near the base of the stems of the old plants; these should be taken off and potted at once in the manner of mature specimens, and if allowed the warmest part of the house, or a brisk bottom heat, they soon establish themselves. To believers in the Darwinian theory of insect-eating plants, the Pitcher Plants offer a good argument. In nearly all the varieties a fluid is found at the bottom of the "pitchers," that seems to attract, and at the same time poison ants that flock to it in immense numbers, sometimes a thousand being found in a single "pitcher." Mr. William Smith, Superintendent in the Botanic Gardens, Washington, D. C., holds to the belief that the fluid intoxicates the insects. First introduced in 1820.

Nep'eta. Catnip, Cat Mint. From *Nepet* a town, in Tuscany. Nat. Ord. *Labiatæ*.

An extensive genus of hardy herbaceous plants, properly classed with troublesome weeds. *N. cataria*, the well-known Catnip, which is regarded as an useful herb, and *N. Glechoma* (Ground Ivy) have become naturalized throughout most of the States, until they have become more troublesome than useful. The latter is, however, an excellent companion plant to *Vinca minor* for covering very shady areas or door-yards in the cities or for growing under trees, or other very shady spots in the country. *N. G. variegata*, a variety its leaves beautifully variegated with white, has been lately introduced from Japan, and is an excellent and valuable basket plant, and it will probably prove hardy. *N. cataria*, is now being grown in rough waste places for Bee-food, for which it is said to be valuable. *N. Mussini*, is an old plant, and was once used a good deal for edgings to borders for which its compact growth well suits it. The other species are suitable only for botanical collections. Syn. *Glechoma* and *Cataria*.

Nephe'lium. An ancient name for Burdock; applied in reference to the similarity of the heads of the flowers and seeds. Nat. Ord. *Sapindaceæ*.

A small genus of fruit-bearing trees from China and the East Indies. *N. Litchi*, the best variety has fruit nearly round, about one inch and a half in diameter, with a thin brittle shell of a red color, which is quite warty. When fresh, they are filled with a white, almost transparent, sweet, jelly-like pulp; after they have been gathered some time, the fruit shrivels, turns black, and then bears some resemblance to Prunes. The Chinese are very fond of these fruits, and consume large quantities of them, both green and in the dried state, preserved.

Nephro'dium. From *nephros*, a kidney; the shape of the spore-cases. Nat. Ord. *Polypodiaceæ*.

An extensive genus of Ferns, distributed freely over the warmer parts of the Old and New Worlds, and consisting mostly of species which have more or less the aspect of the common male fern, *N. Filix mas*. The most familiar species is *N. molle*, which is everywhere met with in collections of cultivated ferns as well as among dried ferns from nearly all parts of the world. Many beautiful species and varieties, both hardy and exotic, are now in cultivation, and are deserved favorites in all collections. The various genera, however, of this section or group of Ferns, as *Polystichum*, *Sagenia*, *Aspidium*, *Lastrea*, *Nephrodium*, etc., have been so mixed up by botanists that no two agree as to which particular genus many of the species belong.

Nephro'lepis. From *nephros*, a kidney, and *lepis*, a scale; referring to the covering of the seed or spore-cases. Nat. Ord. *Polypodiaceæ*.

A considerable genus of very handsome tropical Ferns. *N. davallioides furcans* is by

far the finest of the family, and the one best adapted for the ordinary green-house. It has no equal for the sitting room or conservatory, being a rapid grower, of graceful habit, and not liable to be injured by sudden changes of temperature. *N. exaltata*, and *N. tuberosa* (syn. *N. cordifolia*), are both very desirable species, especially for large hanging baskets. *N. Duffii* is also a very elegant species having fascicles of numerous gracefully-arching narrow fronds. It was introduced from Duke of York's Island in 1878. There are many other interesting and beautiful species, all of easy culture, and rapidly increased by division, or by spores.

Nephrospe'rma. From *nephros*, a kidney, and *sperma*, a seed; referring to the shape of the seed. Nat. Ord. *Palmaceæ*.

N. Van Houtteanum, the only described species, is a very elegant, armed, plant-stove palm, with pinnate, gracefully arched leaves, divided into pendulous, acuminate, unequal segments. The plants are very useful for decorative purposes in the young state. It was introduced from the Seychelle Islands in 1868, and is propagated by imported seeds. Syns. *Areca nobilis*, and *Oncospermum Van Houtteanum*.

Ne'phthytis. Named after *Nephthys*, the mother-in-law of Typhon. Nat. Ord. *Aroideæ*.

A small genus of four species, of which *N. picturata* is remarkable for the handsome variegated character of its foliage. This variegation is peculiar, and quite unique in character, forming a pattern resembling in outline the tips of fern-fronds laid between the nerves of the bright green-colored leaves, with their points all directed towards the base of the leaf. Introduced from the Congo in 1887.

Neptu'nia. Named after the mythological deity *Neptune*, in reference to the species growing in water. Nat. Ord. *Leguminosæ*.

A singular genus comprising about eight species of prostrate, often floating perennial, herbs or small shrubs. Natives of North and South America, tropical Asia and Australia. *N. plena* (abounding), the only cultivated species, is a most curious and interesting water-plant with yellow flowers. The white, spongy, lower portion of the stems full of air-cells, enabling the plant to float, are very remarkable. The leaflets and petioles are as irritable as those of *Mimosa pudica*, and are of an extremely delicate yellowish-green color. It was introduced from Mexico in 1845. *N. lutea* is found in damp soil near the coast, Key West to Alabama and westward.

Neri'ne. Guernsey Lily. Named after *Nerine*, daughter of Nerius. Nat. Ord. *Amaryllidaceæ*.

Showy bulbous plants, the type of which is the Guernsey Lily, and which are natives of the Cape of Good Hope, China, and Japan. The Guernsey Lily is a native of Japan, and the reason why it has obtained its English name is said to be, that a ship laden with these bulbs and other plants from China was wrecked on the coast of Guernsey; and that the bulbs being washed on shore, took root in the sandy soil of the beach, and flourished there so remarkably as to be supposed to be natives of the island. Whether this story be true or not, it is quite certain that for nearly two

hundred years these bulbs have been cultivated in Guernsey with the greatest success, growing freely in the open air, and producing abundance of offsets every year, from which the market is supplied. The bulbs are generally planted in spring, in pots of very sandy loam, and placed in some window or other situation where they will have plenty of light. They flower in September and October; and as soon as they have flowered the bulbs are generally thrown away, as they are said never to flower well the second year. This is, however, entirely the fault of the grower, as, if they were planted in a well-drained, sunny border in the open ground, and allowed to mature their new bulbs every year by the agency of the leaves, there is no doubt that they would live as long as any of the kinds of Narcissi, and flower as freely. The true Guernsey Lily is *N. sarniensis*. *N. curvifolia* is also an exceedingly beautiful species, and one of the most vigorous growers. The flowers which appear at various seasons, are of a bright glittering scarlet, the petals in the sunlight appearing as if sprinkled with gold-dust. It is probably the most showy of the genus, and is known in cultivation as *Amaryllis* or *Nerine Fothergillia*.

Ne'rium. Oleander. From *neros*, moist; referring to their native places of growth. Nat. Ord. *Apocynaceæ*.

Nerium oleander and its varieties are old and valued inhabitants of our green-houses; their large and handsome flowers, either double or single, pink or white, produced in the early part of the season, having made them general favorites. As the flowers are borne only on mature, well-ripened shoots, the plants must be well exposed to sun and air during their period of growth. Many beautiful varieties, both double and semi-double, mostly of Continental origin, have been introduced of late years, and are the more valuable on account of their blooming freely when in a young or dwarf state. Neriums are easily propagated by cuttings of the matured leading shoots in a close, narrow, warm place, or they may be rooted successfully in bottles of water, and afterwards potted carefully in soil. Their principal insect enemy is the White Scale, which only persistent sponging or washing with kerosene emulsion will subdue. Notwithstanding their beauty they are one of the most virulent of vegetable poisons. The leaves are fatal to animals; the flowers have caused death to those who carelessly picked and ate them, and it is on record that the branches divested of their bark, and used as skewers, have poisoned the meat roasted on them, and killed seven out of twelve persons who partook of it.

Ne'rtera. From *nerteros*, lowly; referring to the habit of the genus. Nat. Ord. *Rubiaceæ*.

A small genus of creeping, herbaceous plants, indigenous to the mountains of Java, the Phillipine and Sandwich Islands, the Andes of South America, Australia, and New Zealand. *N. depressa*, the Bead Plant, commonly known under the absurd name of Flowering or Fruiting Duckweed, is a beautiful hardy perennial rock plant, forming a dense carpet, close to the ground, of creeping stems thickly covered with tiny, small, ovate, almost fleshy leaves. The plant is exceedingly

attractive and conspicuous when covered with its bright orange-red or crimson berries about the size of small peas, and which are produced in the greatest profusion. It may be increased from seeds, but is generally propagated by division of the root, any small piece of which will root freely. It is also well adapted for growing in pots or shallow pans. Introduced from the Antarctic Mountains in 1868.

Nerves. The strong veins upon the leaves or flowers.

Nervose. Nervous; full of nerves.

Nesæ'a. A genus of *Lythraceæ*, comprising about a dozen species of erect, leafy, perennial herbs, or sub-shrubs, natives of America and Africa, with yellow, purple, or blue flowers. *N. verticillata*, our native species, is a most showy plant, with four to six-sided stems, two to six feet long, bearing axillary, rose-colored flowers on short pedicels. Found in swampy ground, common in the Eastern States.

Netted-veined. Furnished with branching veins forming net-work.

Nettle. See *Urtica.*

Nettle Tree. See *Celtis.*

Neuma'nnia. A genus, now included under *Pitcairnia.*

Neurolo'ma arabidifolia. A synonym for *Arabis albida.*

Ne'viusia. Named in honor of the *Rev. R. D. Nevius*, of Alabama, the discoverer. Nat. Ord. *Rosaceæ.*

N. Alabamensis, the only species, is a handsome shrub, with slender branches and numerous large, white, solitary or clustered flowers on terminary peduncles. It differs from its allies, *Kerria*, *Rhodotypus*, etc., in having no petals, the absence of which is compensated by the large spreading persistent calyx-lobes. It was discovered in Alabama in 1882, and may be propagated by cuttings.

New Jersey Tea. See *Ceanothus.*

New Zealand Flax. See *Phormium.*

New Zealand Spinach. *Tetragonia expansa.* This is grown as a substitute for summer Spinach, being of a delicate flavor, and continuing available the whole summer. This species is found in Tasmania, Australia, Norfolk Island, and both sides of South America, as well as in New Zealand and Japan. It is a half-hardy annual under cultivation, and was introduced into England from New Zealand in 1772 by Sir Joseph Banks, on his return from accompanying Captain Cook on his first voyage around the world, and disseminated by the English seedsmen.

New Zealand Tea. *Leptospermum scoparium.*

Nica'ndra. Named after *Nicander*, who wrote on medicine and botany about 150 A.D.

A genus of *Solanaceæ*, comprising only one species, *N. Physaloides* (Winter-cherry-like), so called from the resemblance of its fruit to that of Physalis, is a stout annual plant, about two feet in height, with smooth, deeply sinuated leaves. Introduced from Peru in 1759.

Nico'tiana. Tobacco. Named in honor of *John Nicot*, of Nismes, ambassador from the King of France to Portugal, who procured the first seeds from a Dutchman, who had them from Florida. Nat. Ord. *Solanaceæ.*

Of this extensive genus of annuals and perennials, the best known and most generally cultivated is *N. tabacum*, and its varieties. There are, however, several other species largely cultivated, particularly in Mexico, Central America, and the West Indies. The specific name, *tabacum*, according to Humboldt, is derived from the Haytian word for the pipe in which the herb is smoked, and which has been transferred from the instrument to the plant. *N. repanda* is largely grown in the West Indies, and furnishes the material for the celebrated Havana cigars. "Smoking is a custom of very great antiquity in both hemispheres, although, previous to the discovery of America, it was not common among the inhabitants of the Old World, and the substances smoked were either Hemp or such herbs as Coltsfoot. But when Columbus and his followers landed in Cuba in 1492, they discovered the far-famed Tobacco in common use among the natives; and subsequent explorers found it was spread over the whole continent of America, where it had been cultivated from time immemorial. The pleasantly soothing effects of this new herb were so enticing that it soon found patrons among the adventurers, and in an almost incredibly short time after their return to Spain, tobacco-smoking began to be practiced in Europe; but it did not gain much ground among the nations of the North until the famous Sir Walter Raleigh and his companions introduced the custom into England in 1586. At first it met with the most violent opposition; kings prohibited it; popes fulminated bulls against it; and sultans sentenced smokers to the most cruel kinds of death. Persecution, however, only helped to spread it. In spite of all penalties, the custom rapidly progressed, until, at the present day, it may be said to be almost universally practiced by both civilized and uncivilized man." *N. affinis* is a good border plant, having long tubed white flowers, which open about 6 P. M., and emit a powerful and pleasant odor during the evening and night. *N. Wigandioides*, a shrubby species from Columbia, has large ovate-acuminate leaves, and is well adapted for sub-tropical gardening.

Nierembe'rgia. In honor of *John Eusebius Nieremberg*, a Spanish Jesuit, author of a History of Nature, Antwerp, 1635. Nat. Ord. *Solanaceæ.*

A very interesting genus of annuals and green-house herbaceous perennials, natives of Central and South America. These interesting little plants well deserve attention. *N. filicaulis* and *N. gracilis* are among the most beautiful of the class of plants adapted for embellishing the flower garden in summer, or "turning out," as it is termed. A few specimens of either, in a tolerably good situation, will keep up a display from June till cut off by the autumnal frosts; nor are the other species, *N. aristata* and *N. calycina*, deficient in beauty, though not so well adapted for this purpose, because of their more extended habit. *N. rivularis*, introduced from La Plata in 1866, is a very handsome hardy perennial, bearing white flowers with a pale-yellow centre. It is a low-growing plant, and is in flower from June till fall in the open border. This species is much used in cemetery decoration. Cut-

tings put in during the winter in the greenhouse, will make fine plants for planting out in spring.

Nige'lla. Love-in-a-Mist, or Devil-in-the-Bush. From *niger*, black; the color of the seeds. Nat. Ord. *Ranunculaceæ.*

Annual plants, with showy flowers, which are, however, almost hidden by their leafy involucres. *N. Hispanica* is the handsomest species. They only require sowing in March or April in the open border; or they may be sown in autumn, as they will stand the winter without protection, and will thus be ready to flower early in the summer. They are mostly natives of the south of Europe, and have long been in cultivation.

Niger. Black, or black a little tinged with gray.

Night Blooming Cereus. See *Cereus.*

Night Blooming Jasmine. See *Cestrum.*

Night Flower. A name given to *Nyctanthes arbor-tristis.*

Night Scented Stock. A common name applied to *Hesperis tristis, Matthiola tristis, M. odoratissima,* etc.

Nightshade. See *Solanum.*

Night Shade. Deadly. *Atropa Belladonna.*

Night Shade. Enchanter's. See *Circæa.*

Nigrescens, Nigricans. Blackish.

Nimble Will or **Drop Seed.** A popular name for the grass *Muhlenbergia diffusa.*

Ni'pa. The name of the tree in the Moluccas. Nat. Ord. *Palmaceæ.*

N. fructicans, the only representative of the genus, is an ornamental, unarmed, palm-like plant, with a creeping, furcated trunk, feathery leaves, and large round bunches of fruits. Dr. Seemann, in the "Treasury of Botany," says: "It is commonly met with in the salt marshes of the coasts and islands of the Indian seas, and is generally classed with *Pandanaceæ*, or *Palmaceæ*, but does not quite agree with either of these natural orders. A similar plant abounds in the tertiary formations at the mouth of the Thames, where its fruit must at one time have floated about in as great profusion as those of *N. fruticans* do at the present day in Indian rivers. It is rather difficult to grow and is found to succeed best with the pot partially submerged in water; it was introduced to cultivation in 1822.

Niphæ'a. From *niphos*, snow; in allusion to its pure white flowers. Nat. Ord. *Gesneraceæ.*

A small genus of green-house herbaceous perennials, with pure white flowers. The genus is allied to *Achimenes*; it requires the same treatment, and is increased in the same manner. Introduced from New Grenada and Guatemala in 1841.

Nipho'bolus. From *niphobolos*, covered with snow; referring to the white covering of the spore cases. Nat. Ord. *Polypodiaceæ.*

A genus of Ferns found in the East Indies, Australia, and Africa. They were separated from *Polypodium*, to which they bear a close resemblance. Some of the species are very beautiful, and well adapted for the Fern-case. They are increased by division or by spores.

Ni'tidus. Having an even, smooth, polished surface, as many seeds.

Nitra'ria. From *nitrum*, nitre; first found by Schreber near the nitre works in Siberia. Nat. Ord. *Malpighiaceæ.*

Low shrubs with white flowers, which are very hardy, and will grow well in situations exposed to the sea. In gardens, the ground in which they grow should be occasionally watered with water in which saltpetre has been dissolved.

Niva'lis. Growing near snow, or appearing at a season when snow is on the ground,

Niveus. Snow-white; the purest white.

Node. That part or point in a stem from which a leaf, whether complete or incomplete, arises.

Nodose. Nodulose. Knotted; having many nodes or knots.

No-Eye Pea. Of the West Indies. See *Cajanus.*

Noise'ttia. Named after *L. C. Noisette*, a French nurseryman, author of "Le Jardin Frutier." Nat. Ord. *Violaceæ.*

N. longifolia, the only cultivated species, is a green-house evergreen shrub, introduced from Cayenne in 1824. The flowers are cream color, produced in large clusters. Propagated by cuttings.

Nola'na. From *nola*, a little bell; the form of the flowers. Nat. Ord. *Convolvulaceæ.*

Trailing annual plants, with pretty blue flowers, that only require sowing in early spring in the open border. *N. atriplicifolia*, the handsomest species, strongly resembles *Convolvulus minor.* They are natives of Chili and Peru, and were introduced in 1825.

Nolana'ceæ. A natural order now included under *Convolvulaceæ.*

Noli'na. Named after *P. C. Nolin*, a French botanist of the last century. Nat. Ord. *Liliaceæ.*

A genus of about a dozen species, natives of Mexico and the southern United States. *N. Georgiana* (Georgian) is a showy plant, with a very large tunicated bulb, and numerous small white flowers crowded in long bracted racemes borne on scapes two to three feet high. It is found on dry sand hills in the middle districts of Georgia and South Carolina, and flowers in April and May. This genus is now included by Mr. Baker under *Beaucarnea.*

None-so-Pretty. *Saxifraga umbrosa.*

No'nnea. Named after *J. P. Nonne*, of Erfurt, a German writer on botany, 1729–1772. Nat. Ord. *Boraginaceæ.*

A rather large genus of hardy or half-hardy plants of little interest, except in botanical collections.

Noon-Flower, or Noon-tide. *Tragopogon pratensis.*

Nopa'lea. From *Nopal*, the Mexican name for a Cactus. Nat. Ord. *Cactaceæ.*

A small genus of fleshy shrubby plants, closely allied to *Opuntia*, from which they differ in having erect and conivent, not expanding, petals, and the stamens being shorter than the style, but longer than the corolla. *N. coccinellifera*, largely cultivated in Mexico and the West Indies, as food for the cochineal insects, is better known as

NEPENTHES HOOKERIANA.

NERINE SARNIENSIS.

NIEREMBERGIA GRACILIS.

NIGELLA DAMASCENA.

NIGELLA (DWARF DOUBLE).

NOLANA ATRIPLICIFOLIA.

NEPHROLEPIS DUFFII.

NICOTIANA (TOBACCO PLANT).

NICOTIANA AFFINIS.

NYMPHÆA ALBA.

NUPHAR.

NYCTERINIA CAPENSIS.

NIGELLA HISPANICA.

NYMPHÆA DEVONIENSIS.

Opuntia coccinellifera under which name it is described in this work, and which see.

Nora'ntea. Altered from *Gonora-antegri*, the Guiana name of *N. Guianensis*. Nat. Ord. *Ternstromiaceæ*.

A genus of handsome epiphytal or climbing shrubby plants, natives of the tropical parts of America. A few species are in cultivation. *N. Guianensis* has violet-colored flowers on long spikes with large scarlet bracts. The branches are red, and throw out roots by which they are supported. It is a beautiful species and was introduced to cultivation in 1818.

Norfolk Island Pine. See *Araucaria excelsa*.

Normal. When the ordinary structure peculiar to the family or genus is in nowise departed from.

Norway Maple. *Acer Platanoides*.

Norway Spruce. See *Abies excelsa*.

Nosebleed. A common name for the Yarrow. *Achillea Millefolium*.

Notelæ'a. From *notos*, south, and *Elaia*, the Olive; in allusion to the form and native place of the species. Nat. Ord. *Oleaceæ*.

A genus of green-house evergreen shrubs, natives of Australia and Tasmania. The flowers are white and are borne in axillary racemes; the leaves are opposite and entire. *N. ligustrina*, the Tasmanian Ironwood, yields an extremely hard dense wood, which is used as a substitute for lignum-vitæ, and for turnery and inlaid work.

Nothochlæ'na. From *nothos*, spurious, and *chlaina*, a cloak; some of the species appear to have an involucre. Nat. Ord. *Polypodiaceæ*.

An extensive genus of green-house Ferns found in almost every tropical and sub-tropical country. It is related to *Polypodium*, differing only in the *sori*. A number of the species have been introduced into the Fern-house, and among them, *N. nivea*, a fine Silver Fern, and *N. flavens* (syn. *N. chrysophylla*) a very beautiful miniature Golden Fern; *N. lanuginosa*, *N. Marantæ* (an almost hardy species), *N. trichomanoides*, *N. sulphurea*, and *N. Eckloniana*, are all very desirable species. They are propagated by spores.

Nothosco'rdum. From *nothos*, spurious, and *Scordon*, garlic; in reference to the near relationship which exists between this genus and Allium. Nat Ord. *Liliaceæ*.

A genus comprising about ten species of green-house, or hardy bulbs, closely allied to *Allium*, and *Milla*, in which genera the species of this genus are by some authorities distributed. Natives of North and tropical America, and China.

Notospa'rtium. From *notos*, southern, and *Spartium*, Broom; in reference to its being a native of the southern Hemisphere, and its Broom-like appearance. Nat. Ord. *Leguminosæ*.

N. Carmichæliæ the only species, is a beautiful and interesting, half-hardy, Broom-like shrub, or small tree. "This, the 'Pink-Broom,' of the residents of the Middle Islands of New Zealand, is one of the most beautiful plants in the colony, and is further remarkable as being a member of what is one of the largest families of plants in every part of the world, except New Zealand. Indeed, the absence of *Leguminosæ* in New Zealand, in contrast with their great abundance in Australia, is the most singular feature in the Flora of the Island."—Hooker.

Nudicaulis. When a stem has no leaves.

Nu'phar. Yellow Water Lily. From *Naufar*, the Arabic for Water Lily. Nat. Ord. *Nymphaceæ*.

The several species included in the genus are common in ponds and stagnant water in the Middle, Northern, and Western States, and are known as Yellow Water Lilies.

Nut. A hard indehiscent pericarp, usually containing only one seed, the fruit or kernel of the seed of various plants; rarely applied to certain tubers.

Acajou, the Cashew Nut. *Anacardium occidentale*.
Ar. See *Bunium flexuosum*.
Barbadoes. The seed of *Curcus purgans*.
Barcelona. A variety of *Corylus Avellana*.
Bedda. The fruit of *Terminalia Bellerica*, called also Bastard Myrobalans.
Ben. The winged seed of *Moringa pterygoserma*.
Betel. The seed of *Areca Catechu*.
Bitter. *Carya amara*.
Bladder. *Staphylea trifoliata* and *S. pinnata*.
Brazil or Castanha. The seed of *Bertholletia excelsa*.
Bread. The fruit of *Brosimum Alicastrum*.
Bread. Monkey. The fruit of *Adansonia digitata*.
Buffalo. The fruit of *Pyrularia oleifera*.
Butter. *Juglans cinerea*.
Candle. The seed of *Aleurites triloba*.
Cashew. The seed of *Anacardium occidentale*.
Cob. A variety of *Corylus Avellana*.
Cocoa. *Cocos nucifera*.
Cocoa, Double or Sea. *Lodoicea Seychellarum*.
Cola or Kolla. The seed of *Cola acuminata*.
Coquilla. The fruit of *Attalea funifera*.
Earth. *Arachis hypogæa*, also *Bunium flexuosum*, and *Carum bulbo-castanum*.
Elk. The fruit of *Pyrularia oleifera*.
French. *Juglans regia*.
Ground. *Arachis hypogæa*, also a common name for *Aralia* (*Panax*) *trifolia*.
Hazel, English. *Corylus Avellana*.
Hazel, American. *Corylus Americana* and *C. rostrata*.
Hickory. *Carya Alba*, and other species.
Hog or Pig. *Carya porcina*.
Hog Pea. A common name for *Amphicarpæa*, which see.
Ivory. *Phytelephas macrocarpa*.
Jesuits'. *Trapa nutans*.
Malabar. *Adahota Vasica*.
Marking, Maranay or Marsh. The nuts of *Semecarpus Anacardium*.
Mocker or Moker. The nut of *Carya tomentosa*.
Monkey. *Arachis hypogæa*, and the seeds of *Anacardium*.
Oil. The fruit of *Pyrularia* (*Hamiltonia*) *oleifera*, also a West Indian name for the seeds *Ricinus communis*.
Olive. The fruit of *Elæocarpus*.
Pea. See *Arachis hypogæa*.
Pecan. *Carya olivæformis*.
Physic. *Curcus purgans*. (Syn. *Jatropha purgans*.)

Pistachia, or Pistachio. The edible seed of *Pistachia vera.*

Poison. The poisonous seed of *Strychnos nux vomica.*

Rush. *Cyperus rotundus* var. *Hydra,* and *C. esculentus.*

Sapucaia. The seed of *Lecythis Zabucajo,* also, *L. Ollaria* and *L. grandiflora.*

Sassafras. *Nectandra Puchury.*

Singhara. The fruit of various species of *Trapa,* especially *T. bispinosa* and *T. bicornis.*

Soap. *Mimosa abstergens.*

Souari or Suwarrow. The seed of *Caryocar nuciferum* and *C. butryosum.*

Spanish or Barcelona. *Corylus Avellana Barcelonensis,* also *Morœa Sisyrnchium.*

Vegetable Ivory. *Phytelephas macrocarpa.*

Water. The fruit of various species of *Trapas.*

Wood. *Corylus Avellana.*

Nutans. Nodding; inclined very much from the perpendicular, so that the apex is directed downward, as the flower of the Snowdrop.

Nut-galls. The galls produced by insects on *Quercus infectoria.*

Nut-gall-tree. Chinese or Japanese, *Rhus semialata.*

Nut-grass. *Cyperus rotundus,* var. *Hydra.*

Nutmeg. See *Myristica, moschata.*

American. *Monodora myristica.*

Brazilian. *Cryptocarya moschata.*

Californian. *Torreya myristica.*

Clove. *Agathophyllum aromaticum.*

Peruvian. The seed of *Laurelia sempervirens.*

Plume. *Atherosperma moschata.*

Wild. *Myristica fatua,* and *M. tomentosa.*

Nutmeg-Geranium. See *Pelargonium fragrans.*

Nutmeg-wood. The wood of the Palmyra Palm, *Borassus flabelliformis.*

Nut Pine. *Pinus monophylla* (syn. *P. Fremontiana*), and *P. Sabiniana,* the seeds of the latter are collected in immense quantities by the Californian and Oregon Indians as an article of winter food.

Nutta'llia. Named by Torrey and Gray, in honor of *Thomas Nuttall,* of Cambridge, Mass., an eminent botanist. Nat. Ord. *Rosaceæ.*

This genus consists of but one species, *N. Cerasiformis,* a small ornamental deciduous shrub, of nearly globose habit, branching freely, and producing its drooping racemes of white flowers in great abundance. Easily increased by seeds, or by suckers, which spring plentifully from the roots. Introduced to cultivation from California in 1848.

Nux Vomica. See *Strychnos.*

Nuy'tsia. Fire Tree. Named after *T. Nuyts,* a Dutch navigator. Nat. Ord. *Loranthaceæ.*

A genus of very handsome shrubs or small trees from Swan River, Australia, remarkable as being the only one in this order of parasites that grows on the ground. From the abundance of its brilliant orange-colored flowers, the colonists call it the Flame-tree or Tree of Fire.

Nyctagina'ceæ. A natural order of herbs, shrubs or trees, natives of tropical regions, principally America, with opposite unequal leaves and involucrate flowers. The plants of the order have in general purgative qualities; that of *Mirabilis Jalapa* (false Jalap) has

the nauseous smell of the true Jalap, with which it was long confounded. The order comprises about twenty genera, and one hundred species. *Mirabilis, Bougainvillea* and *Abronia,* are illustrative genera.

Nycta'nthes. Sad Tree. From *nyctos,* night, and *anthos,* a flower; the flowers open in the evening. Nat. Ord. *Oleaceæ.*

The only species is a free-flowering shrub or small tree, native of India. The flowers open only in the evening, and drop before morning; their fragrance perfumes the air at night. The flowers are gathered in the morning and worn as necklaces and in the hair by the native women. As it loses its brightness during the day it has received its specific name, *N. arbor tristis,* or Sad Tree.

Nycteri'nia. From *nycterinos,* nocturnal; the flowers being fragrant during the evening. Nat. Ord. *Scrophulariaceæ.*

A genus of half-hardy annuals, perennials, or under-shrubs, natives of the Cape of Good Hope. A few of the species have been under cultivation but they are chiefly plants of little interest. Syn. *Zaluzianskia.*

Nycte'rium. A genus now classed under *Solanum.*

Nycto'calos. From *nyx,* night, and *kalos,* beautiful; because the handsome flowers of the first species discovered open in the evening and fade in the morning. Nat. Ord. *Bignoniaceæ.*

A small genus of twining, shrubby plants, natives of the Malayan Archipelago, Assam and Queensland. *N. Thompsoni,* the only introduced species is a handsome stove-house climber, with white Gloxinia-like flowers nearly seven inches long. It expands only at night and drops the next morning. It was introduced from Assam in 1868.

Nymphæ'a. Water Lily. From *nymphe,* a water nymph. Nat. Ord. *Nymphœaceæ.*

This genus consists of beautiful water plants found in lakes, ponds and rivers in almost all parts of the world. *N. odorata* is the double white Water Lily or Pond Lily, so common and well-known throughout the Eastern and Southern States. Of this species there are several varieties, mostly having pure white flowers, remarkable for their fragrance. There is, on the Island of Nantucket, and also near Barnstable, Mass., a variety with pinkish flowers, and rarely with bright pink-red flowers. They are exceedingly beautiful, and valued highly for their rarity. The cultivation of all our native species in tubs on the lawn, or wherever desired, is attended with but little difficulty. The roots should be obtained from their native habitat as early in spring as possible, or at least before they have made much growth. Take any tub or cask, say eighteen inches in depth, put in good rich loam or muck to the depth of six or eight inches, in which plant the roots, barely covering them, and fill the cask with water, replenishing it as it loses by evaporation. In winter empty the water and remove to a cold cellar, or protect from hard freezing by a covering of leaves. This is all the care and trouble required to produce flowers almost as fine as are found in their natural homes. Artificial ponds can be made upon the lawn

with but little expense, in which the Nymphæa may be grown with less trouble even than in tubs. Dig out a basin-shaped pond of any desired size, to the depth of two and a half feet in the centre, cement in the same manner as for a cistern, put in some earth, and plant the same as in a tub. Cover over with boards upon the approach of cold weather, and then cover all with leaves or coarse litter sufficient to protect the cement from frost. This will not only furnish beautiful aquatic flowers, but will attract thousands of birds, particularly robins, daily for their baths. Many of the rarer exotic species, such as *N. gigantea*, *N. Zanzibarensis*, *N. cærulea*, *N. rubra*, *N. scutifolia*, *N. Devoniensis*, *N. Lotus*, etc., are now grown in this way, and are exceedingly attractive during the summer. The Water Lily, when expanded, towards evening has the peculiarity of enticing myriads of insects to light on its petals, the petals gradually close as evening falls, and the insects are imprisoned. They are propagated by seeds, which, in most cases, ripen freely, and should be sown in small pots of soil and submerged in shallow warm water in spring. The seedlings will grow freely, and if properly treated, will flower well the same season.

Ny'ssa. Tupelo, Pepperidge, Sour Gum. From *Nyssa*, a water nymph; because of the habitat of the species. Nat. Ord. *Cornaceæ*.

A genus of beautiful low-growing trees, common in moist woodlands and low grounds throughout the United States. The wood is very tough and difficult to split, and on that account it is valued for hubs of carriage wheels, hatter's blocks, and similar work. The foliage of this genus is remarkable for its fine glossy verdure during summer, and its rich crimson tints in autumn, when it is one of the brightest ornaments of the forest.

O.

Oak. The popular name for the trees of the genus *Quercus*, which see.

Oak. Black. *Quercus Robur.*
Chestnut. *Quercus sessiliflora.*
Chestnut, American. *Quercus Prinus.*
Cork. *Quercus Suber.*
Evergreen. *Quercus Ilex.*
Indian. *Tectona grandis.* The Teak tree.
Japanese. *Quercus glabra.*
Jerusalem. *Chenopodium Botrys.*
Live. *Quercus virens.* An important shipbuilding wood.
Nut-gall. *Quercus infectoria.*
Pin. *Quercus palustris.*
Poison. *Rhus toxicodendron.*
Scarlet. *Quercus coccinea.*
Scrub. *Quercus Catesbœi* and *Q. ilicifolia.*
Swamp. *Quercus Prinus.*
Turkey, American. *Quercus Catesbœi.*
White, American. *Quercus alba.*
Willow. *Quercus Phellos.*
Yellow. *Quercus Castanea.*

Oak-Fern. *Polypodium Dryopteris.*

Oak-leaved Geranium. See *Pelargonium.*

Oat or **Oats.** See *Avena.*

Oat-Grass. See *Arrhenantherum*, also *Avena pratensis* and *Bromus mollis.*

Oat. Water. A name given to Water Rice. *Zizania aquatica.*

Obelisca'ria. From *obeliskos*, obelisk, in allusion to the elevated disk of the flower. Nat. Ord. *Compositæ.*

A small genus of half-hardy, showy perennials, common in Texas. They, too, closely resemble their allied species, the *Rudbeckia*, to become favorites in the garden.

Obero'nia. So called after *Oberon*, the Fairy King, in allusion to the quaint and variable forms of the plant. Nat. Ord. *Orchidaceæ.*

A genus of Orchids, all epiphytal, having terminal spikes of minute flowers, of but little interest except to botanists. In reference to the genus Dr. Lindley says: "The resemblance to insects and other animal forms, which have been perceived in the Orchidaceous plants of Europe, and which have given rise to such names as Fly Orchis, etc., may be traced so plainly in the genus *Oberonia*, in every species, that it alone would furnish a magazine of new ideas for the grotesque pencil of a German admirer of the wild and preternatural. If the Brahmins had been botanists, one might fancy they took their doctrine of metempsychosis from these productions." They are chiefly natives of India and Africa.

Obscure. Of a dark, dingy color.

Obtuse. Blunt or rounded.

Oca. The tubers of *Oxalis tuberosa* and *O. crenata* are so called in Brazil, where they are cooked and used like potatoes.

Occidental. Coming from or relating to the west, as *Platanus Occidentalis.*

O'chna. From *Ochne*, the old Greek name for the wild Pear, to which the foliage of this genus bears some resemblance. Nat. Ord. *Ochnaceæ.*

A genus of about twenty-five species of evergreen shrubs, natives of tropical Asia and Africa, only a few of which are in cultivation. *O. multiflora*, is a most remarkable as well as handsome plant. The fruit is about the size of a Strawberry, but less conical, and upon it are placed black seed-like bodies about the size of Peas. These are really the carpels, and present a striking contrast to the bright crimson receptacle and calyx. It is a native of Sierra Leone, and was reintroduced in 1882.

Ochna'ceæ. A natural order of trees and shrubs scattered over the whole of the tropics, but mostly in America. Some of the species possess tonic properties, and the berries of *Gomphia Jabotapita*, are edible. The order contains twelve genera, including *Gomphia*,

and *Luxemburgia*, and about one hundred and fifty species.

Ochra or **Ochro.** *Abelmoschus esculentus.*

Ochraceous. Having the color of clay, or yellow ochre.

Ochroca'rpus. From *ochros*, pale yellow, and *karpos*, a fruit; alluding to the color of the fruits. Nat. Ord. *Guttiferæ.*

A genus of tropical trees, natives of Africa, Asia, and the Mascarene Islands, of little horticultural interest. *O. Africanus*, bears a large fruit with a thick rind and a yellow pulp. The tree abounds with a yellow resinous gum. Syn. *Mammea.*

Ochroleucus. Whitish-yellow.

Ochro'ma. Cork-wood. From *ochros*, pale; referring to the flowers. Nat. Ord. *Malvaceæ.*

O. Lagopus, a tree growing from thirty to fifty feet high, known as Corkwood, is common in the West Indies and Central America, where it is employed as a substitute for cork, for stopping bottles; it is also extensively used for making rafts, floats for fishing nets, and other purposes where light wood is required.

Ochro'pteris. From *ochros*, pale-yellow, and *pteris*, a Fern; alluding to the color of the plant. Nat. Ord. *Polypodiaceæ.*

O. pallens, the only described species, is an extremely rare and beautiful Fern requiring an abundance of heat and moisture to grow it successfully. It has large decompound fronds, with small, glossy, coriaceous pinules, and is an introduction from the Mascarene Islands and Mauritius.

O'cimum. Basil. From *Okimon*, the old Greek name used by Theophrastus for Basil. Nat. Ord. *Labiatæ.*

A somewhat extensive genus of fragrant and aromatic plants, mostly natives of India. The most important of them are *O. basilicum*, the Sweet or Common Basil, a tender annual, introduced from India in 1548, and *O. minimum*, the Dwarf or Bush Basil, a native of Chili, and introduced in 1573. The leaves of both species have a strong aromatic smell, and are much used in seasoning soups and various other dishes.

Oco'tea. Said to be the native name of the tree in Guiana. Nat. Ord. *Lauraceæ.*

A large genus comprising about two hundred trees or shrubs, natives of tropical America, a few being found in the Canary Islands, South Africa, and the Mascarene Islands. *M. bullata*, probably the only species yet introduced, has small green flowers, and is a plant of comparatively little interest. It is also in cultivation under the name of *Oreodaphne bullata.*

Octome'ria. From *okto*, eight, and *meris*, a part; in allusion to the pollen masses. Nat. Ord. *Orchidaceæ.*

A genus of green-house epiphytal Orchids, natives of Brazil, Guiana, and the West Indies. They are curious little Pleurothallis-like Orchids, and are frequently imported along with Bromeliads, about the bases of which they grow on the trunks of trees. *O. graminifolia*, with pale-yellow flowers, and *O. Saundersiana*, with yellow flowers striped with purple, are the best known species. The latter was introduced from Brazil in 1880.

Oculatus. Marked with concentric spots of different colors or tints.

O'cymum. A synonym of *Ocimum*, which see.

Odes or **Oides.** A Greek termination signifying similarity; as Phyllodes, leaf-like.

Odontade'nia. From *odous, odontos*, a tooth, and *aden*, a gland; in allusion to the five-toothed glands. Nat. Ord *Apocynaceæ.*

A genus of shrubby plants, natives mostly of Brazil and Guiana. *O. speciosa*, the only introduced species, has showy yellow, delicately-scented flowers, borne in large, loose bunches, and is an excellent plant for training on the rafters of the plant-stove. It is propagated by cuttings, and was introduced from Trinidad in 1854. Syn. *Dipladenia Harrisi.*

Odontoglo'ssum. From *odous, odontos*, tooth, and *glossa*, a tongue; tooth-like processes on the lip or labellum. Nat. Ord. *Orchidaceæ.*

A very extensive genus of epiphytal Orchids, found principally in the cool mountain regions of Mexico, Peru, New Grenada, and Venezuela. Very many of the species have been introduced into the green-house, and are greatly prized by cultivators for their magnificent flowers, which are remarkable, both for their size and the beauty of their colors. Many of the species have pure white flowers, variously spotted; some have a powerful odor of violets. With but few exceptions, they require to be grown in a moderately cool house. All the Odontoglossums are propagated by division, none having as yet been raised from seeds. Mr. H. Veitch, in his paper on the "Hybridization of Orchids," 1855, says that numerous crosses, between various species, both Mexican and New Grenadan, have been effected, and seed-pods, with apparently good seed, have been produced, but with the utmost care that could be bestowed, no progeny has yet been raised. See Orchids.

Œna'nthe. From *oinos*, wine, and *anthos*, a flower; referring to the vinous odor of the blossoms. Nat. Ord. *Umbelliferæ.*

A genus of mostly uninteresting herbs, frequenting wet or marshy places, or even growing in water. *Œ. crocata* is a stout-branched species, attaining a height of three to five feet, and is remarkable as being one of the most poisonous plants of the whole order. The juice of the stem and roots becomes yellow when exposed to the air. The roots act as a narcotic, acrid poison, and from their resemblance to parsnips, have been the cause of frequent, and sometimes of fatal accidents. The plant has been used with beneficial results in certain skin diseases, and for the purpose of poisoning rats and moles.

Œnoca'rpus. From *oinos*, wine, and *karpos*, a fruit; yields palm-wine and oil. Nat. Ord. *Palmaceæ.*

An exclusively South American genus of lofty Palms, consisting of several species, some of which yield large quantities of sweet-tasted oil, which is excellent for cooking, and is much used for burning in lamps.

Œnothe'ra. Evening Primrose. From *oinos*, wine, and *thera*, imbibing; the roots of *Œ. biennis* were formerly taken after meals as incentives to wine-drinking. Nat. Ord. *Onagraceæ.*

A genus of annual, biennial, or perennial herbaceous plants, natives of North and South

America, a few species of which are naturalized over the warmer portions of the globe. Many of the species and varieties are amongst the most beautiful and attractive of hardy plants, their large, showy, fragrant flowers presenting considerable difference in color, some being yellow, others white or purple, and usually opening in the evening. They are all of easy cultivation, readily increased by seeds or division, and are most suitable for the margins of shrubberies, mixed borders, or similar situations. *Œ. Fraseri*, *Œ. Missouriensis* *Œ. biennis*, var. *Lamarckiana*, *Œ. riparia*, *Œ. Taraxifolia*, and many other sorts, will be found excellent for this purpose, while many of the annual sorts, better known under the familiar name of *Godetia*, are most attractive in mixed borders, especially if sown or grown in clumps or masses.

Officinalis. Applied to plants which are useful in medicine or the arts.

Offset. Short branches next the ground which take root.

Oidium. A name given to a genus of naked-spored moulds, which has obtained considerable notoriety from its connection with the Vine Mildew, which arises from the attacks of *O. Tuckeri*. This fungus derived its name from a gardener at Margate, England, who was one of the first to use sulphur as a remedy. There are many different kinds of Oidium, all peculiar to the plants they most frequent, thus Peas, Hops, Turnips, etc., have their special species to contend against. The best known remedy is an application of the flowers of sulphur, or a weak solution of sulphide of potassium.

Oil of Ben. See *Moringa*.

Oil of Bergamot. See *Mentha citrata*.

Oil of Origanum. See *Origanum*.

Oil Palm. See *Elæis*.

Oil Plant. *Sesamum orientale*.

Okra. See *Hibiscus esculentus*.

Oldenla'ndia. Named after *H. B. Oldenland*, a Dane, who collected plants at the Cape of Good Hope. An extensive genus of *Rubiaceæ* comprising nearly seventy species of stove and green-house plants, found in tropical countries, principally in Asia. *O. umbellata*, commonly known as Chay-root, yields a red dye, and is largely employed by the dyers of southern India, the plant there being extensively cultivated. *O. Deppeana* is a favorite free-flowering green-house plant, with white flowers, almost constantly in bloom.

Old Maid. *Vinca rosea*.

Old Man. *Artemisia Abrotanum*, *Clematis vitalba*, and *Rosmarinus officinalis*.

Old Man Cactus. See *Pilocereus*.

Old Man's Beard. *Saxifraga sarmentosa*, *Tillandsia usneoides*, and *Geropogon*, which see.

Old Witch Grass. *Panicum capillare*.

Olea. Olive. From *elaia*, Olive. Nat. Ord. *Oleaceæ*.

Europœa, var. *sativa*, the tree that produces the Olives and Olive Oil of commerce, is a low-branching evergreen, growing from twenty to thirty feet high. The leaves bear some resemblance to those of the Willow, only they are softer and more delicate. The flowers are as delicate as the leaves, and are produced in small axillary bunches, from wood of the former year, and appear from June until August. At first they are of a pale yellow; but when they expand their four petals, the insides are white, and only the centre of the flower yellow. The matured wood of the Olive is hard and compact, though rather brittle; its color is reddish, and it takes a fine gloss, on which account the ancients carved it into statues of the gods, and the moderns make it into snuff-boxes, and various trinkets, that find a ready sale to travelers in Eastern lands. An observing visitor to the Holy Land from New York says: "There is annually more Olive-wood sold from the Mount of Olives to Pilgrims than ever grew there." The Wild Olive is found indigenous in Syria, Greece, and Africa, and on the lower slopes of the Atlas. The cultivated one grows spontaneously in many parts of Syria, and is extensively cultivated in the south of France, Italy, and Spain, and has been, from all the accounts we can gather, from the earliest periods of the earth's history. The young Olive bears its fruit at two years old; in six years it pays the expense of cultivation; after that period, in good years, the produce is the surest source of wealth to the farmer. A common saying in Italy is, if you wish to leave a lasting inheritance to your children's children, plant an Olive. Besides its use for the production of oil, the unripe fruit is used as a pickle. For this purpose they are steeped in an alkaline solution, to extract a part of the bitter flavor, they are next washed in pure water, and afterward preserved in salt and water, to which fennel, or some aromatic, is sometimes added. Olive branches have for ages been regarded as emblems of peace and plenty. The *O. fragrans* (syn. *Osmanthus fragrans*) is a native of China, and is highly odoriferous, and on this account is much esteemed by the Chinese, who use the leaves to adulterate and flavor tea. It is also a favorite green-house plant. It is readily increased in spring by cuttings of well-ripened wood. *O. Americana*, a native species, common from North Carolina to Florida, is an evergreen shrub or small tree, producing axillary racemes or panicles of small, white, fragrant flowers, and a bitter, astringent fruit about the size of a pea.

Olea'ceæ. A natural order of trees and shrubs, natives chiefly of North America, Asia, Europe, and New Holland, with opposite simple or compound leaves, and hermaphrodite, or unisexual flowers. The plants of the order are bitter, tonic and astringent, and some yield fixed oil. Olive oil is expressed from the fruit of a cultivated variety of *Olea Europœa*, and the unripe fruit macerated in brine and flavored with aromatics is used as a condiment. Ash-wood (*Fraxinus*) is invaluable for its lightness, flexibility and strength, several species of *Ornus* yield manna, and the bark of the common Ash has been proposed as a substitute for quinine. There are upwards of twenty genera, including *Olea*, *Fraxinus*, and *Syringa*, and nearly one hundred and fifty species.

Oleaginous. Fleshy in substance, but filled with oil; also, like oil.

Oleander. See *Nerium Oleander*.

Olea'ndra. A small genus of tropical Ferns distinguished from *Aspidium* chiefly in habit, with wide-creeping scandent shoots, jointed

stems, and entire lanceolate-elliptical fronds. *O. neriiformis* and *O. nodosa* are both easily cultivated, free-growing species.

Olea'ria. A genus of *Compositæ*, very nearly allied to the *Aster*, and only distinguished from the *Eurybia*, which generally represents *Aster* in Australia, by the pappus being more distinctly double, and the outer ring of setæ being shorter and often more chaff-like. It consists of about a dozen shrubs, natives of New Zealand, with small entire or toothed leaves cottony beneath. Some of them *O. Haastii*, for instance, make beautiful bushes in the open border. Propagated by cuttings of the half-ripened wood.

Olea'ster. See *Elæagnus*.

Oleraceous. Esculent, eatable.

Olfe'rsia. Named after *Olfers*, a German botanist. Nat. Ord. *Polypodiaceæ*.

A genus of hot-house Ferns common in the West Indies, South America, and occasionally in the East Indies. There are many species, but few of them are under cultivation. This genus is included under *Acrostichum* by some botanists.

Olibanum, or Frankincense Tree. *Boswellia thurifera*.

Olivaceous. Greenish-brown.

Olive. See *Olea*.

Olive. Barbadoes. *Bontia Daphnoides*.

Olive-Bark Tree. *Terminalia Catappa*.

Olive. Californian. *Oreodaphne Californica*.

Olive. Wild. *Elæagnus angustifolius*, also *Rhus Cotinus* and *Daphne Thymelæa*.

Olive Wood. See *Elæodendron*; also the yellowish fancy wood of the Olive tree.

Ompha'lea. From *omphalos*, the navel, alluding to the umbilicated anthers. Nat. Ord. *Euphorbiaceæ*.

A genus of tropical trees or tall shrubs remarkable for the curious structure of the male flowers. *O. triandra* the only species in cultivation, introduced from Jamaica in 1793, grows about twelve feet high and is more interesting than ornamental. A juice is extracted from it that turns black in drying and is used in making ink, or as glue; the nuts after the poisonous embryo is extracted are edible.

Omphalo'bium. From *omphalos*, the navel, and *lobos*, a pod. Nat. Ord. *Conaraceæ*.

A small genus of tropical trees that furnish the beautiful Zebra Wood of the cabinet-makers. The species are mostly confined to Africa and India.

Omphalo'des. Venus's Navelwort. From *omphalos*, the navel, and *eidos*, like; the fruit resembles the navel. Nat. Ord. *Boraginaceæ*.

An interesting genus of hardy annuals, and perennials. They are natives of southern Europe, Asia Minor, and the Caucasus. *O. linifolia*, is a common border annual, known as Venus' Navelwort. The flowers are white, tinged with blue. *O. verna*, the Petite Consoude of the French, is a charming, low-growing perennial, with creeping shoots, heart-shaped leaves, and brilliant blue flowers, like the Forget-me-not; sometimes from its habit, called Creeping Forget-me-not. It is propagated by division.

Onagra'ceæ. A natural order of annual or perennial herbs, or shrubs, with simple leaves, and the parts of the flower usually tetramerous. They inhabit chiefly the temperate regions of Europe, Asia, and America, and are found sparingly in Africa. The species contain mucous, and occasionally somewhat astringent principles. Some yield edible fruits, as *Fuchsia*, others furnish edible roots, as *Œnothera biennis*, and both *Trapa natans*, and *T. bicornis*, remarkable for their horned fruit, supply edible seeds. There are about twenty-two known genera, and upwards of three hundred species. *Fuchsia, Gaura, Œnothera*, and *Trapa*, are illustrative genera.

Onci'dium. From *onkos*, a tumor; the plants belonging to this genus have warts, tumors, or other excrescences at the base of the labellum. Nat. Ord. *Orchidaceæ*.

This is perhaps the most extensive and varied genus in the order to which it belongs. Some of its species have extremely large pseudo-bulbs, others have the pseudo-bulbs very small; another portion are entirely destitute of these, and have instead thick, leathery leaves, which again vary in size from two feet long and nearly half as much in breadth, to scarcely six inches in their greatest measurement; a third group are distinguished by their rounded, rush-like leaves, about the thickness of a little finger, and from two to four feet in length. Besides this, quite as much disparity exists in the size and color of the flowers, and in the length of the flower-spike, which, in some species, will attain an extent of twenty feet, while in others it is not more than three or four inches; yet every individual is beautiful and worthy a place wherever Orchids are grown. *O. Papilio*, the Butterfly Orchid, is certainly as much like a butterfly as it is possible to imagine a flower to be, and as it is borne on a long slender stem, which quivers with every breeze, it forms no bad representation of a beautiful insect fluttering over the neighboring flowers. *O. altissimum* has a spike of flowers which is sometimes ten or twelve feet in length. *O. altissimum, O. ampliatum majus, O. cucullatum, O. Gardnerianum, O. Papilio, O. Kramerianum, O. splendidum, O. macranthum, O. Marshallianum, O. Jonesianum, O. varicosum, O. crispum*, etc., are among the most beautiful of this large and interesting genus. They are all natives of South America, Mexico, and the West Indies, and as they will thrive in a lower temperature than the *Aerides* and other East Indian Orchids, they are very suitable for a small hot-house. It is better to cultivate all the larger growing kinds in pots or pans, and to place them in rather large ones, that they may not require frequent shifting, which, each time it is performed, inflicts a serious check upon the plants, in consequence of the unavoidable breaking of the roots. The soil for them should be turfy peat and sphagnum, thoroughly mixed, but not broken finely; this, with abundant drainage, a brisk, moist temperature in the growing season, shade from strong light, a careful preservation from insects and dirt, and a moderate rest in winter, will not fail to form healthy flowering specimens in a short time. The smaller species may be placed on cork, or in baskets.

Oncospe'rma. From *onkos*, a tumor, and *sperma*, a seed; in reference to the form of the seeds. Nat. Ord. *Palmaceæ*.

A genus of a few species of spiny plant-stove Palms, natives of tropical Asia. There are several species in cultivation, the best known of which, "*O. filamentosum*, the Nibung or Nibong of the Malays, is a very elegant Palm, found growing in masses in swampy places upon the coasts of Malacca, Sumatra, Borneo, and the islands of the Indian Archipelago. It attains a height of forty or fifty feet, and has leaves ten or twelve feet in length, with very numerous, narrow, drooping leaflets about two feet long. In Borneo, the delicate white heart of the unexpanded leaves, called the Cabbage, is highly esteemed as a vegetable. The unsplit trunks are used for house-building, for posts, etc., and the hardest part of the split trunks for rafters, flooring, etc."—A Smith, in "Treasury of Botany." When growing they require plenty of heat and a copious supply of water, and are propagated by seeds or by suckers. Syns. *Areca* and *Nephrosperma*.

Onion. *Allium cepa*. The Onion has been known and cultivated as an article of food from the very earliest period. Its native country is unknown, but it is believed to have originated in the East. In the sacred writings we find it mentioned as one of the things for which the Israelites longed when in the wilderness, and complained to Moses because they were deprived of their Leeks, Onions, and Garlic, of which, said the murmurers: "We remember we did eat in Egypt freely." To show how much it was esteemed by the ancient Egyptians we need only mention that Herodotus says in his time (450 B.C.) there was an inscription on the Great Pyramid, stating that a sum amounting to 1,600 talents had been paid for Onions, Radishes, and Garlic, which had been consumed by the workmen during the progress of its erection. Even at the present day, the people of western Asia, as well as the inhabitants of cold countries, are all large consumers of Onions, which, for culinary purposes, are more universally cultivated than almost any other vegetable. The garden varieties that have been introduced are very numerous, and their origin about as difficult to trace as the species. The justly celebrated Bermuda Onion of our markets is grown from seed annually imported from the south of Europe. Onions are also most extensively grown in the United States, one seed firm alone selling twenty tons of the seed annually. The varieties grown are the red, white, and yellow-skinned, among which are numerous varieties, the favorite kinds being known as Yellow Danvers, White Globe, Red Globe, Wethersfield Red, White Portugal, etc. Beginners growing the Onion for market had better consult works specially devoted to Onion culture, or works specially on Market Gardening, but for private use we will briefly detail the methods. For the earliest crop the "sets" or small bulbs, which are produced from seed thickly sown the previous year, should be planted as early in spring as the ground is dry enough to work, in beds four or five feet wide, and in rows nine inches apart with two or three inches between the sets or bulblets, pressing these down about an inch or so into the soil. Grown in this way, the Onions are usually used in the green state. For the main crop the seed proper, is thinly sown in drills two or three inches deep, the rows at the same distance apart as for the sets. To insure quick and safe germination after sowing the seed, the drills should be trod along evenly with the foot, and then raked level. This plan of treading in seeds with the feet we invariably practice, particularly if the soil be dry. If not done, our hot, dry atmosphere penetrates the loose soil, partially drying up the seed, which always impedes germination, and often destroys the crop completely. The omission of practicing the firming of the soil over seeds, either by the feet, roller, or in any other manner that will accomplish the purpose, is the loss of many millions annually, not only to the garden, but to the farm. The importance of this subject is our excuse for the digression. In ten to twelve days after sowing, the Onion seed will have started sufficiently to show the rows. The ground should then be lightly hoed, so as to destroy the weeds which germinate, many of them simultaneously with the Onion seed. In the seed rows, where the hoe cannot be used, the soil should be stirred with the fingers, otherwise weeds would quickly grow up and choke the crop. When about three or four inches high the Onions should be thinned out to two or three inches apart. Kept entirely clear from weeds, the crop is ripened off in June, July, or August, according to the latitude in which it is grown. It is a curious fact, however, that Onions do not ripen their bulbs later than August; consequently, though they will grow well enough if sown late in the season, yet, if wanted to ripen so as to keep during winter, they must be sown in the first sowing of seeds in the spring. Two kinds of Onions are grown exclusively from bulbs, one of these is the Potato Onion, or "Multiplier," which increases by the bulb splitting up and dividing itself into six or eight smaller bulbs, which in turn form the sets to plant for the next crop. The other variety is what is called the Top Onion, which forms little bulbs on the top of the stem in the place of flowers. These bulbs are in clusters, and about the size of hazel nuts. The bulbs are broken apart, and planted in spring at the same distances as the "sets."

Onion. Barbadoes. *Ornithogalum scilloides*.
Crow. *Allium vineale*.
Gipsey. *Allium ursinum*.
Himalayan. *Allium leptophyllum*.
Hog. *Osmunda regalis*.
Pearl. *Allium Ampeloprasum*.
Potato. *Allium cepa*, var. *aggregatum*.
Sea. *Urginea* (*Scilla*) *maritima*.
Tree, or Canada. *Allium proliferum*.
Welsh. *Allium fistulosum*.
Wild American. *Allium cernuum*.

Onion Lily. See *Ornithogalum caudatum*.

Onobrychis. Sainfoin. Esparsette. From *onos*, the ass, and *brycho*, to bray; said to be the favorite food of the ass. Nat. Ord. *Leguminosæ*.

A somewhat extensive genus of hardy herbaceous perennials, or small shrubs, natives of Europe, western Asia, and north Africa. *O. sativa*, Sainfoin, the only species of special interest, grows about two feet high, with branched, rather spreading stems, and large spikes of crimson flowers variegated with purple and white. It has a long tap root, ex-

tending to a considerable depth, which, on hard soil, tends to break up the subsoil, and loosen it for subsequent cultivation. It has been grown in some parts of France, Germany, and England for years, and has proved a most valuable fodder plant, especially in light, dry, sandy or calcareous districts in the Southern and Western States. Owing to its long descending roots it flourishes during long continued droughts, and succeeds in many situations where no other forage plant would exist. It is moreover very nutritious, and whether made into hay or fed green is greatly relished by all domestic cattle. It will crop from seven to ten years, according to the nature of the soil, and its yield is greatly increased by judicious top dressing. Its culture is almost identical with that of Alfalfa or Luzerne, which see.

Ono'clea. From *onos*, a vessel, and *kleio*, to close; referring to the singularly rolled up fructification. Nat. Ord. *Polypodiaceæ*.

A very distinct genus of Ferns, the principal and perhaps the only species of which is *O. sensibilis*, sometimes called the Sensitive Fern, but having no other claim to this name, beyond the fact of its speedily withering when cut. It is a very common Fern, found generally in moist or wet places, along streams, etc. It is an excellent subject for a shady place in the rock garden.

Ono'nis. Rest-harrow. From *onos*, an ass, and *onemi*, to delight; the ass delights to browse on the herbage. Nat. Ord. *Leguminosæ*.

An extensive genus of small herbaceous plants, common to Europe. A few species are tender annuals from the Cape of Good Hope. They have white, pink, or yellow flowers, some of them very pretty, but best suited to rough, waste places. They are easily grown from seed, and will adapt themselves to any place given them.

Onopo'rdon. Cotton Thistle. From *onos*, an ass, and *perdo*, to destroy; referring to the supposed effects on the ass. Nat. Ord. *Compositæ*.

O. Acanthium, the supposed Scotch Thistle, is a native of Europe, but has become naturalized in many parts of the United States. It grows from six to eight feet high, and is one of the most showy of the Thistle family. According to common tradition, the Danes or Norsemen, while invading Scotland, came upon the Scots, unperceived at midnight, and halting while their spies were thrown forward to discover the undefended points of their enemy's camp, one of them chancing to tread upon a Thistle of this species, uttered a loud cry of pain, which roused the Scots to their danger, who at once attacked and repelled the invaders, gaining a complete victory; and henceforth they adopted the Thistle as the national emblem. In 1540 James V. instituted an order of knighthood called the Order of the Thistle. See Scotch Thistle.

Ono'seris. From *onos*, an ass, and *seris*, Endive; a salad for asses. Nat. Ord. *Compositæ*.

A genus of about a dozen shrubs or herbs, natives of the Andes and tropical South America. The leaves of *O. adpressa* are over three inches long, and are pure white and

cottony beneath. Introduced in 1830, under the name of *Centroclinium*.

Ono'sma. Golden Drop. From *onos*, an ass, and *osme*, smell; said to be grateful to that animal.

A genus of *Boraginaceæ*, consisting of nearly seventy species, only a few of which are in cultivation. They are found in northern Africa, southern Europe, and west and central Asia. *O. stellatum*, and its variety *O. s. tauricum*, with yellow flowers, are the most showy, and should have a well-drained sunny exposure in the rock garden, or herbaceous border.

Onosmo'dium. So called from its similarity to *Onosma*. Nat. Ord. *Boraginaceæ*.

A small genus of hardy herbacous perennials, only two of which, *O. Carolinianum* and *O. Virginianum* both with yellowish-white flowers, and natives of the United States, are in cultivation.

Ony'chium. From *onyx*, a claw; shape of the lobes of the fronds. Nat. Ord. *Polypodiaceæ*.

A small genus of very elegant Ferns found in Japan, Africa, Australia, and the East Indies. A few of the species are under cultivation, and among them *O. Japonicum*, a delicate, fennel-like Fern, fragile, fairy-like, yet one that succeeds well with the most ordinary green-house treatment. It requires shade, and is propagated from spores or by division. Introduced in 1864. Syns. *O. Capense* and *O. lucidum*.

Opaque. When the surface is dull, or not at all shining.

Opera Girls. See *Mantisia saltatoria*.

Opercula'ria. From *operculum*, lid; referring to the shape of the calyx. Nat. Ord. *Rubiaceæ*.

A genus of very pretty Australian green-house shrubs or herbs, sometimes twining. The species, of which only two are in cultivation, succeed best in a compost of sandy loam and leaf mould, and are propagated by seeds sown in heat in spring, or by cuttings of the young shoots.

Operculum. The lid of anything, as in the pitcher of *Nepenthes;* more especially the lid of the spore-cases of Urn-mosses.

Ophe'lia. From *Opheleia*, serviceable; plants useful in medicine. Nat. Ord. *Gentianaceæ*.

This genus is composed of one species, a pretty little annual, with starry pink flowers, allied to the Gentian. Seeds should be sown early in the hot-bed or in the green-house, and planted out as soon as the border is ready for tender plants. It is a native of the East Indies, and was introduced in 1836. Syn. *Swertia*.

Ophiocau'lon. From *ophis*, a serpent, and *kaulon*, a stem; in reference to its climbing habit. Nat. Ord. *Passifloraceæ*.

A small genus of plant-stove, climbing, herbaceous plants, natives of tropical Africa, Natal, and Madagascar. *O. Cissampeloides*, introduced from western Africa in 1871, is a green-house climber with orbicular or cordate, glaucous leaves two to three inches long, often mottled with white. It is closely allied to *Modecca*, and is often found in cultivation under the name of *Passiflora marmorata*.

Ophioglo'ssum. Adder's Tongue. From *ophios*, a snake, and *glossa*, a tongue; referring to the shape of the spike of fructification.

OCIMUM (BASIL).

ŒNOTHERA MISSOURIENSIS.

OBELISCARIA.

OCHNA MULTIFLORA.

ODONTOGLOSSUM ROSSII.

ŒNOTHERA LAMARCKIANA.

ŒNOTHERA DRUMMONDI.

ORNITHOGALUM AUREUM.

ORNITHOGALUM ARABICUM.

ORIGANUM (SWEET MARJORAM).

ONOPORDON ACANTHIUM.

ONOBRYCHIS (SAINFOIN).

OKRA (DWARF), PROLIFIC.

The typical genus of *Ophioglossaceæ*, distinguished from all others of that order, by having its fructification borne in the form of spikes. The species are spread over the whole world, from the Torrid to the Arctic Zones, and being of simple structure are not readily discriminated. Some botanists regard the greater part of them as mere forms of *O. vulgatum*, the common Adder's Tongue.

Ophiopo'gon. From *ophis*, a serpent, and *pogon*, a beard; a translation of the native Japanese name. Nat. Ord. *Hæmodoraceæ*.

A small genus of hardy or half-hardy herbaceous perennials, natives of India, China and Japan. They have long, linear leaves and erect spikes or racemes of flowers, about a foot in length. *O. Jaburan variegatus* is a most beautiful and useful plant for the cool green-house or for hanging baskets, vases, etc. Its deep violet-blue flowers, freely produced in dense spikes, followed by deep blue berries about the size of currants, and remaining a long time in perfection, are an excellent contrast to the drooping broad grass-like leaves striped with green and creamy-white. There is a variegated form of *O. Japonicus intermedius*, known as *O. J. argenteo-marginatus* which though producing white flowers is also an excellent plant for the purposes named. They are both introductions from Japan, are of easy culture, and are increased readily by division. Syn. *Flueggia*, sometimes spelled *Fluggia*.

O'phrys. From *ophrys*, eyebrows; referring to the fringe of the inner sepals. Nat. Ord. *Orchidaceæ*.

A small genus of terrestrial Orchids, chiefly natives of England. They are exceedingly difficult to manage, but produce their flowers, which are of rare beauty, freely in early summer, in fields and dry pastures. *O. opifera* looks as though a bee were buried in the flower; another, *O. aranifera*, has the lip in the form of a spider; and in a third, *O. muscifera*, the whole flower resembles a fly.

Opium. See *Papaver somniferum*.

Oplisme'nus. From *hoplismenos*, awned; referring to the awns. Nat. Ord. *Graminaceæ*.

A small genus of tender grasses allied to *Panicum*, broadly dispersed over the tropical and sub-tropical regions. *O. Burmanni variegatus* is a beautiful drooping grass, prettily variegated with white and pink. It is best known in cultivation as *Panicum variegatum*.

Opo'panax. Ancient Greek writers mention a medicinal plant under this name, which is used by botanists to designate a genus of *Umbelliferæ*, containing two or three species. *O. Chironium*, is a plant six or seven feet high, resembling the Parsnip, and is a native of southern Europe. It yields a milky juice, having similar properties to those possessed by Ammoniacum, but is now scarcely used. The plant is of no ornamental value, and is only to be found in botanic gardens. Syn. *Malaibala Apoponax*.

Opora'nthus. From *opora*, autumn, and *anthos*, a flower. Nat. Ord. *Amaryllidaceæ*.

A hardy, free-flowering bulb from the south of Europe. The flowers bear a strong resemblance to the Yellow Crocus, for which, indeed, if it flowered at the same season, it might easily be mistaken. It is very ornamental, and should be planted in beds with the Colchicum, as they flower at the same season, and contrast finely in color. It grows freely in a light soil, but should have a slight protection in winter to perfect the bulbs. It generally comes into flower with our first frosts, the leaves remaining green during the winter. This bulb was formerly classed as *Amaryllis lutea*, and none but the keen eye of the botanist can see any difference. This genus is now included with *Sternbergia*, which see.

Opposite. Placed on opposite sides of some other body or thing, and on the same plane. Thus when leaves are opposite, they are on opposite sides of the stem; when petals are opposite they are on opposite sides of the flower, and so on.

Oppositifolius. Opposite a leaf, that is to say, growing on the side of a stem opposite to that on which a leaf grows; also applied to leaves opposite to each other.

Opu'ntia. Prickly Pear. Indian Fig. A Latin name of which the derivation is not applicable to the species now placed under it. Nat. Ord. *Cactaceæ*.

There are upward of a hundred and fifty species of the *Opuntia*, or Prickly Pear, all of which are natives of this continent. They are found chiefly in Mexico, California, Peru, Brazil, the West Indies, and a few in the United States. The plants, when old, are hard and woody, but the new growth remains succulent or fleshy for some time. Some species grow erect and tree-like, while others are procumbent or creep on the ground, and nearly all have spines. The upright growers sometimes reach a height of ten feet or more, and one kind even twenty feet. Some of them (*O. Tuna*, for example) have been introduced into southern Europe, Africa and other places where they are cultivated for the sake of obtaining Cochineal. The flowers (except in *Nopalea*) are generally a dull reddish orange. The fruit is pear-shaped, two or three inches long, and of a bright carmine color when ripe. The fruit is edible, and has a pleasant sub-acid flavor, being considered cooling and refreshing, and is much used in the West Indies and other places. The juice is sometimes used as a water color, and also for coloring candies. In Mexico the plant is used for hedges as well as for the Cochineal insect, and from the fruit is prepared a beverage called Colinche. Writers tell us that in Algeria the French make from the old wood a number of ornamental articles, such as flower trays, fancy baskets, etc., and even veneering. The Opuntia, it will be seen, is a plant of considerable commercial value. Botanists have taken three species from *Opuntia*, to which they have given the generic name *Nopalea;* the reason of which may not be apparent to the common observer. In the new genus the flowers have erect petals, which are drawn together at the top instead of being expanded, as they are in *Opuntia;* the stamens are longer than the corolla, but shorter than the style. The stems are round, or nearly so, with jointed, fleshy, flat branches; but unlike *Opuntia*, the tubercles upon the branches are not always armed with spines. The flowers, instead of being yellow or orange,

like *Opuntia* are reddish or crimson. In view of the commercial value of the product, we shall next allude somewhat briefly to the *Nopalea* (*Opuntia*) as connected with the cultivation of the Cochineal insect, *Coccus Cacti*. There are two species grown chiefly for this purpose, the *Nopalea coccinellifera* and *N. Tuna*. The first grows about eight feet high, and its branches give it a tree-like appearance. The stem and older branches are nearly round and grayish in color, but the younger growth is flat and deep green in color. The joints are from six to twelve inches long, oblong in form, mostly without spines, but having, when young, a growth of fleshy leaves, which soon drop off, leaving a scar and a tuft of short wool and bristles. Though the name *coccinellifera*, or cochineal bearing, has been given to this particular species, it is not the only one upon which this insect feeds, for in Mexico *N. Tuna* is even more largely grown for the same purpose. Nopaleries is the name given to plantations for rearing the Cochineal insect. The male only is winged, and somewhat resembles the Aphis, and the two are not very distantly related to each other: both feed in the same way, drawing the juices of the plant through a proboscis. It is the female, however, which yields the highly-prized dye. A plantation will sometimes contain from fifty to sixty thousand plants. The plants are grown in rows, but are not allowed to grow to their natural height for convenience in handling. In the month of August the female insects are placed on the plants, and in about four months thereafter the first crop is fit to be gathered, and another prepared for, three being taken in the course of the year. When fully grown the insects are brushed off and dried in ovens, when they are ready for sale. The value of this industry is such that the Prickly Pear has been placed on the coat of arms of the Mexican Republic. Though Mexico is the native place of the Cochineal, it is now largely grown in New Grenada and the Canary Islands, and to a less extent in some parts of southern Europe and Africa. The annual produce amounts to thousands of tons, the usual price being about two thousand dollars per ton, which gives us an idea of the value of the industry. There are many interesting facts connected with the Coccus family, as regards both their natural history and their commercial value which we must pass over, simply remarking that it is to a member of this family that we are indebted for some of the best shell and other lacs. It may be said of them, as it cannot be said of most insects, that they make some amends for the injury they do to plants. Of our native species of Prickly Pear, *O. vulgaris* is the common Prickly Pear of New York and some of the Eastern States. It is very hardy and tenacious of life, growing among the rocks where there is scarcely sufficient soil to cover the roots. Its flowers are bright yellow, very handsome, and produced freely. There are other American species which produce larger and even handsomer flowers than *O. vulgaris*. The other members of this order take precedence in the green-house, on account of their rarity, and, in some instances, more showy flowers. See *Nopalea*.

Opuntia'ceæ. A natural order, now placed as a sub-division of *Cactaceæ*.

Orache, or Mountain Spinach. See *Atriplex*.

Orange. See *Citrus*.

Orange-flower Tree. *Philadelphus coronarius*.

Orange Gourd. *Cucurbita Pepo aurantia*.

Orange Grass. *Hypericum Sarothra*.

Orange Osage. See *Maclura*.

Orange Root. *Hydrastis Canadense*.

Orbicular. Nearly round and flat.

Orchard. Fruits of all kinds are now so extensively used, that there are few country gardens large enough to give a sufficient supply of fruit, even if it were desirable to grow many fruit trees in a vegetable garden. It is often necessary therefore to establish an orchard from which to supply the ordinary demands for the larger fruits. As these trees will last a generation or longer, and as many of them are several years before they come into bearing, any error, therefore, made in the selection of kinds, is a serious one. Whenever practicable, the purchase of trees for the orchard should be made direct from the nurserymen whose reputation is beyond question. Many thousands of farmers, and others, in nearly every section of the country have been victims of irresponsible tree peddlers, who, either from ignorance or design, have palmed upon their unfortunate patrons, apples, pears, peaches, plums, and other fruit-trees, which, after years of anxious waiting for, have proved entirely worthless. The safest plan therefore, is to purchase direct from the nearest reliable nurseryman, keeping in view the point that it is best always to buy trees grown *North* of your latitude, and not to plant too many varieties, but only those that are found to do best in your locality.

The soil and its preparation for the orchard are also vital matters. For most fruits a deep and rather sandy loam is best, but, as in all other crops, it is useless to plant trees unless the soil is free from water, and if draining is necessary it must be thoroughly done. (See draining.) A limestone gravelly soil is best for apples; pears succeed best upon good clay loams; plums require a rather moist soil for the best results, and peaches must have a warm light sandy loam with a somewhat heavier subsoil, but well drained, either naturally or artificially. The location of an orchard is quite important. Apples and peaches do best upon hilly or rolling ground, while pears and plums do well in low lands. A western exposure, and in some cases a northern slope, is preferable to any other, for all fruits. A southern slope is the worst of all, as the trees in such a case are forced by the sun's warmth into a too early growth, and often suffer from late spring frosts, which destroy the blossom, while the more backward trees upon western and northern slopes are uninjured. The advantage of a western slope is that it escapes the morning sun, which is sometimes injurious after a cold frosty night, while it enjoys the last of the evening sun and so gets a large share of warmth which remains during the night.

THE PREPARATION OF THE SOIL and the manner of planting the trees are of the utmost importance, and should be thoroughly well done. A rich soil is not required. If the land is able to produce a good crop of corn, potatoes or

clover, it is rich enough; if made too rich the trees are apt to make too much wood, or a weak, rank, growth, which must be cut away by pruning and thus really exhaust the tree, and put off its bearing period for some considerable time. The following details will suggest a proper method for the average conditions. The planter of course must study his particular case and make a judicious application of these suggestions. The land should be well plowed in the fall or late summer, as deeply as possible; deep plowing in this case is beneficial, when it might be otherwise for an ordinary crop. The next thing to be done is to prepare a sufficient quantity of good compost of rotted leaves, sod, scrapings of the barn-yard, lime, wood ashes and some rotted manure. These are well mixed and put into a heap ready for use. The trees are then ordered to be delivered at a special time, and for safety, and the proper guidance of the nurseryman full and accurate directions should be given for shipping. The orders should be sent so as to give the nurseryman ample time to ship the trees. The next work is to stake out the ground, and dig the holes, two feet deep, and large enough to give the roots ample spread, say four feet wide. The top soil should be thrown on one side by itself. The compost is then hauled on to the ground and a liberal quantity of it thrown into the hole and spread, and partly mixed with the earth in it, being left slightly raised in the centre for the tree to rest upon. Everything is now in readiness for the trees. When these arrive, they should be unpacked and sorted at once, and each variety laid in the wagon by itself. Each variety should be planted separately in a row or block. The wagon is then taken to a field. The planter who has a boy to assist him, takes a tree, sets it firmly upon the earth in the hole so that it is a little deeper than it has been in the nursery, and while the assistant holds it, he spreads the roots and carefully works the soil among them that so they are in as natural a position as possible. This is very important and should be well done. After this the rest of the top soil is thrown in and well trodden with the feet. Then the subsoil is put in with a little of the compost mixed with it and thoroughly well firmed with the feet, but left in a slight mound so as to turn water from the stem. After all the trees have been thus planted, each one should be properly pruned, the young wood being cut back one-third and the head properly shaped. Fall planting, which is generally preferable, should be done from the 15th October to the 15th November, and spring planting as soon as the ground is free from frost and dry enough to work.

The after treatment of a young orchard should be as follows: For the first three years such crops as potatoes, beans or turnips, that are cultivated and manured may be grown, but no others, both to manure the ground, destroy weeds, and for the sake of the cultivation, the trees being hoed as the rest of the crop. Afterwards the ground may be sown to clover, but not to grass, as a sod is injurious to a young orchard, although it may be permitted in an established one.

Orchard Baler. This name is given to an invention that promises to be of great value to the fruit-growing interest of the Unites States. It is a machine by which the branches of fruit or other trees are tied in a pyramidal form, and in this shape thatched with straw or hay, as a protection in winter against the severe frosts which cause so much injury to the buds of Peaches and other fruit trees. Thus thatched and excluded from the sun, the flower buds of fruit trees will be held back from opening for nearly a week, which will often be sufficient to save them from late spring frosts. It is claimed that Peach Trees so protected never fail to produce annually a crop of fruit. A pair of these machines cost from $25 to $50; and it is claimed that two men can bale and thatch fifty trees per day. The time for the operation is after the leaves have fallen in autumn, or any time except when the limbs are frozen. Of course, it is equally applicable to ornamental trees, and for such trees as the *Magnolia grandiflora*, which is rarely seen in good condition north of Richmond, it would be particularly valuable.

Orchard Grass. See *Dactylis*.

Orche'lla Weed. The common name of several species of *Roccella*, a genus of lichens, celebrated for their valuable properties as dye-weeds.

Orchida'ceæ. A very large order of plants, and one of the most natural families of the vegetable kingdom. They are perennial herbaceous plants or shrubs, assuming a terrestrial habit in temperate countries, and in warmer latitudes, growing on trees (Epiphytes), or fixing themselves to stones. Orchids are found in almost all parts of the world, and are noted for the peculiar shapes and diversity of their flowers. According to the authors of the "Genera Plantarum," the order contains over 330 genera and 5,000 species.

Orchid Culture. The following article on Orchid culture was written in 1888 for "Gardening for Pleasure," by Mr William Grey of Kenwood, Albany. As he is known to be one of the most successful growers of Orchids in this or indeed any other country, his experience may prove valuable to the more skillful as well as to the tyro in their culture.

The taste for cultivating Orchids is rapidly increasing. Every season, dozens of amateurs already possessing green-houses begin the culture of Orchids. To be successful, careful attention and some knowledge of the subject by actual practice are necessary; but as most of our gardeners are such as have had European training, nearly all that are proficient in their business have a knowledge of Orchid culture. It is about the only part of floriculture that I have had no actual practice in, so that I am glad to avail myself of the experience of Mr. Grey, who kindly has written the following brief instructions:

The best twelve well-known kinds are, *Cattleya Trianiæ, Dendrobium nobile, Dendrobium Wardianum, Lælia anceps, Cœlogyne cristata, Lycaste Skinneri, Odontoglossum Alexandræ, Odontoglossum Pescatorei, Cypripedium insigne, Phaius Wallichii, Calanthe Veitchii, Calanthe vestita.* The next twelve are *Cattelya Mossiæ, Cœlogyne ocellata, Cypripedium Spicerianum, Cypripedium villosum, Dendrobium crassinode, Phaius grandifolius, Phalænopsis amabilis, Phalænopsis Schilleriana,*

Phalænopsis Stuartiana, Vanda cærulea, Vanda Sanderiana, Zygopetalum Mackayi. (For description of the various species, see Orchid Catalogues.)

"Of these the best suited for growing in pots are, *Cattleyas, Dendrobiums,* and *Odontoglossums,* all of which do well in coarse chopped peat, the pots nearly filled with crocks; *Cœlogyne* and *Lycaste,* coarse, sandy peat, with chopped, half-decayed leaves; *Cypripediums, Phaius,* and *Zygopetalums* in peat and loam, and a little rotten manure; *Phalænopsis, Vandas,* and *Lælias* do well in baskets, pots, or small pans, in chopped sphagnum; the drainage must be perfect. *Calanthes,* chopped sods of sandy loam, with not over-fine leaf mould. The plants must be made steady with stakes and copper wire.

"The kinds suited to grow on bark or cork, or other such material, are *Cattleyas, Lælias, Phalænopsis, Vandas,* and *Dendrobiums.* These all do well on blocks of cork, rafts, cylinders, etc., with sphagnum or other moss; but take more care as they dry so quickly. A plant on a block will take water twice a day; the same in a basket only once in two days. Blocks can be hung overhead, and dipped twice a day in hot, dry weather.

"The temperature should be for such varieties as *Phalænopsis, Vandas, Dendrobiums,* and *Cypripediums,* in winter, sixty to sixty-five degrees at night, to seventy-five degrees by day, with air; in summer, seventy degrees at night, ninety or more degrees by day, with plenty of air and ventilation at night. *Cattleya, Lælia, Phaius, Calanthe, Cœlogyne,* and *Zygopetalum,* in winter, fifty-five or sixty degrees at night, seventy degrees with sun by day; in summer, sixty-five degrees at night, eighty-five degrees by day, with plenty of air. *Odontoglossums,* in winter, fifty-five degrees at night, sixty-five degrees by day; in summer, as cool as they can be kept. All want abundance of atmospheric moisture night and day.

"Some kinds, such as *Phalænopsis* and *Vandas,* grow at all seasons; *Cypripediums, Cattleyas,* and *Lælias* in spring; *Calanthe, Cœlogyne, Phaius,* and *Zygopetalums* in summer. When any plant grows in winter (except *Odontoglossums*) it should be placed in a warm house. *Odontoglossums* do best at a temperature of fifty-five to seventy degrees; never hotter, if possible.

"*Cattleya Trianæ, Lælia anceps,* and *Cypripedium insigne* bloom during the resting period, which is from December to January. *Phalænopsis* and *Vandas* grow all the year; and during the short dark days of fall and winter less food is given by withholding water. *Calanthe, Cœlogyne,* and *Phaius* bloom with the maturity of the growth, and lay dormant until spring.

"The best shading for an Orchid house, when ground glass is not used, is canvas raised eighteen inches above the roof; or, if that is not convenient, thin paint made of turpentine and whitening, or white lead. Lay it on in the middle of March and brush it off in the middle of October. Ground glass is too dark from October to March for plants, and nothing does well with me under it in winter. I use first quality clear French glass. When the glass is shaded with canvas it should be done from March to October from nine o'clock in the morning to four o'clock in the afternoon, except on cloudy days.

"Orchids when grown by a florist to pay would have to be grown in quantity, each species with a house to itself; but when grown by amateurs, of course nearly all species are usually grown in one house. The most of the twenty-four species named could be had in flower from November to April. All plants with a tendency to early maturity should be placed at the warm end of the house; or in the fall, partition off the space necessary at the warmer end for the most forward. The plants would have to be imported from the woods at first cost, when grown to sell (established plants at present prices would be too expensive), and the flowers sold cheap to become popular. Orchid-growing to-day, is where Rose-growing was thirty-five years ago. To sum up: In the cultivation of Orchids all plants, when newly potted or mounted, should be made firm, or wired, otherwise, if the plants move by syringing, or other cause, the rootlets will be destroyed. The atmosphere of an Orchid house should always be moist, winter and summer, in winter allowing the pottery, cork, or other material to become more dry. Light and air are essential to vigorous growth, deluging with water when in active growth, but never closing top ventilation; never having a stagnant atmosphere; gradually withholding water as the growth approaches maturity, and then only enough to keep them from shriveling. As to the time for repotting, the cultivator is guided by the commencement of growth. Plants should always be underpotted as long as the plant is not top-heavy, for such as *Cattleyas, Lælias, Dendrobiums,* etc. a top-dressing is often all that is needful. *Calanthe, Phaius,* etc., are repotted annually.

"Insects, such as thrips and aphis, are kept under by filling the evaporated pans, or other vessels, with chopped tobacco stems covered with water. Slugs are kept down by placing lettuce leaves, sliced potatoes or carrots on the pots, which examine daily and destroy. Roaches and water bugs may be killed by mixing roach poison with molasses, and placing it on oyster shells at convenient points in the green-house. These same remedies will be found effective against insects attacking any kind of green-house plant."

Orchid Fertilization. So much interest has of late years been exhibited in this subject, that we would refer the reader for information on this as well as other important questions in Natural Science to Charles Darwin's work "On the various Contrivances by which British and Foreign Orchids are Fertilized by Insects." This must always be a book of reference to those who wish to understand the very curious structures that adapt many Orchids, in a very peculiar degree to benefit by the visits of insects, while a smaller number are adapted for self-fertilization alone.

Orchid Flowers in Motion. Great interest has lately been exhibited in the motion of the beautifully fringed labellum of *Bulbophyllum barbigerum,* the numerous long hairs on which keep continually in motion. A correspondent of "Garden and Forest" in mentioning it also says:

"The singular little *Masdevallia muscosa* is,

perhaps, still more remarkable. It appears from an account which has recently been published, that the lip of this plant is sensitive and has a movement as definite as that of the remarkable *Dionœa muscipula*, or "Venus' Fly-trap." The habit of the plant is almost that of the well-known *M. Harryana*, but smaller, the flowers standing some six inches high; light yellow in color, the tube of the sepals short, the lip long and protruding, and much narrowed behind. When the flowers open, the lip hangs pendulous underneath, but when an insect alights on the lip, and touches a small cushion-like disc, situated some distance from the apex, the lip suddenly shuts up tight against the column moving through an angle of 80° or 90° in two seconds. The Masdevallia is not as bloodthirsty as the Dionœa, for the insect is not tightly boxed in, nor does the plant forthwith proceed to devour and digest its victim. There is a way of escape between the two petals and the face of the column, but the insect can scarcely fail to carry away the pollen-masses in making its exit, and there can be little doubt that on visiting a second flower it comes in contact with the stigma, and thus fertilization is effected.

"This is not all. The plant regularly goes to sleep at night—that is to say, it closes up tight—but positively refuses to sleep in the daytime; for two hours in a dark cellar are reported to have made no impression on it. The slightest touch with a hair on the sensitive cushion causes the lip to close suddenly, but after a short time it gradually opens again. Another remarkable point about the plant is that the peduncles are completely covered with greenish-yellow moss-like bristles, which have been well compared to those of the Moss Rose. There is no climbing up some other way. Ants have been observed to make the attempt, but eventually had to give it up in disgust. It is supposed that this is the particular use of these bristles to keep away robber-insects. Those who would pay their respects must come in a legitimate way, and alight on the flower itself. Quite a little chapter of romance; but one would suspect that the insect goes away with rather mixed feelings after its first visit."

Orchis. From *orchis*, testiculate; referring to the two oblong, bulb-like roots of many of the species. Nat. Ord. *Orchidaceæ*.

A dwarf genus of terrestrial Orchids, mostly unpretending, yet beautiful little plants. They are common in England and throughout most of Europe, *O. mascula* and *O. maculata*, being among the most beautiful and interesting plants of the British woods. With the exception of a few species, they are perfectly hardy, and can be grown in the outside border, or in pots, forced like the Hyacinth. They do not like being moved from their native homes, but are easily produced from seed, which, if sown in a frame of light, turfy loam, will make flowering plants in three years. *O. spectabilis* (Showy Orchis), is common in rich woods throughout the Northern, Eastern and Western States. This species does well under cultivation. Propagated by division.

Orchis. Bee. *Ophrys apifera.*
Cuckoo. *Orchis mascula.*
Fly. *Ophrys muscifera.*
Marsh. *Orchis latifolia.*
Military. *Orchis militaris.*
White Fringed. *Habenaria blephariglottis.*
Yellow Fringed. *Habenaria ciliaris.*

Ordeal Bean of Old Calabar. See *Physostigma.*

Ordeal Tree. See *Tanghinia.*

Oreoco'me Candollei. A very striking and effective decorative plant belonging to the Nat. Ord. *Umbelliferæ*.

It makes a fine pyramid, five feet high, furnished with large leaves that are as finely divided as those of a *Todea*, spread out horizontally, and recurve gracefully.

They are of fresh green color, and the flowers which rise well above the foliage, are pure white. It is quite hardy and is an excellent plant for margins of shrubberies or for planting singly on a lawn.

Oreoda'phne. From *oreos*, a mountain, and *Daphne*, Mountain Daphne. Nat. Ord. *Lauraceæ*.

A genus of hardy evergreen trees, confined mostly to the Pacific Coast. *O. Californica* (syn. *Umbellularia*) is a common tree in the mountainous parts of California, where it goes by a variety of names, such as Mountain Laurel, Spice-bush, Balm of Heaven, Sassafras Laurel, Cajeput-tree, California Laurel, etc. In some parts it attains a height of fifty to one hundred feet, but in the southern districts it is seldom more than fifteen or twenty feet high. When bruised it emits a strong spicy odor which is apt to excite sneezing; the natives use the leaves as a condiment. This species was introduced by Mr. Douglas in 1862. Syn. *Ocotea.*

Oreodo'xa. From *oreos*, a mountain, and *doxa*, glory; alluding to the lofty stature of some of the species. Nat. Ord. *Palmaceæ*.

A small genus of very tall-growing and handsome Palms, inhabiting the West Indies and tropical America. Some of the species are among the most graceful of palms. *O. regia*, the Royal Palm, is a favorite cultivated species, and is largely used in the decoration of rooms. *O. oleracea*, the West Indian Cabbage Palm, sometimes attains a height of one hundred and seventy feet, with a very small trunk, perfectly straight and cylindrical. The heart of the young leaves is cooked like Cabbage, and the pith affords Sago. Oil in considerable quantities is obtained from the fruit. Young plants are obtained from seed.

Oreo'panax. From *oreos*, a mountain, and *Panax*, alluding to the relationship of the plants to *Panax*, and their natural habitats. Nat. Ord. *Araliaceæ*.

A genus of comparatively late introduction comprising certain tropical American trees and shrubs, closely allied to *Hedera*. Sixty-four species have been described, but only a few are in cultivation. They form very ornamental green-house plants, and are propagated by cuttings of the young shoots.

Organ. A general name for any defined subordinate part of the vegetable structure, external or internal; as cell, fibre, leaf, root, etc.

Oricola. See *Primula.*

Ori'ganum. Marjoram. From *oros*, a mountain, and *ganos*, joy; referring to the natural places of growth. Nat. Ord. *Labiatæ*.

A genus of hardy and half-hardy herbaceous plants and shrubs, natives of Europe and Northern India. *O. vulgare*, the wild Marjoram, common throughout Europe, and naturalized in this country, furnishes the Oil of Origanum, which is an acrid stimulant. *O. Onites* and *O. Majorana* are included in the pot or seasoning herbs, under the name of Marjoram. They are natives of Sicily and Portugal, respectively. There are a few ornamental species sometimes grown as house plants, the more common of which is *O. sipyleum*, a native of the Levant, and popularly known as Hop Plant. It is of easy culture, and is propagated by cuttings.

Ormoca'rpum. From *ormos*, a chain, and *karpos*, a fruit; referring to the narrow chain-like pods. Nat. Ord. *Leguminosæ*.

A genus consisting of three or four shrubs, natives of tropical Africa and the Indian Archipelago, nearly allied to *Æschynomene*. *O. Coronilloides* has pale yellow flowers, borne in many-flowered axillary peduncles in May. Young specimens only are adapted to pot culture, and are produced from cuttings.

Ormo'sia. Bead Tree. From *ormos*, a necklace; in allusion to this use of the seeds. Nat. Ord. *Leguminosæ*.

A small genus of ornamental tropical trees, natives of Guiana and the West Indies. They are all too large for introduction into the green-house. *O. dasycarpa* is the West Indian Bead Tree, or Necklace Tree, the seeds of which, like those of *O. coccinea*, a native of Guiana and Brazil, are nearly round, beautifully polished, and of a bright scarlet color, with a black spot at one end, resembling beads, for which they are substituted, being made into bracelets, necklaces, or mounted in silver for studs or buttons. The seeds are picked up on the seacoast in various places, at very great distances from where they grow, having been carried by strong oceanic currents. They are usually mixed in with small shells, and sold as "Sea Beans," the common error being that they are the fruit of some sea plant.

Ornamental Grasses. See Grasses.

Ornamental Leaved Plants. These are such as are grown for the beauty of their foliage rather than for their flowers; such as the various Crotons, Dracænas, Coleus, Dieffenbachias, etc., with colored or variegated leaves; the numberless Palms, Ferns, Agaves, Aralias, Ricinus, etc., with large showy or finely divided leaves, or possessing other remarkable characteristics in their foliage are also placed in this class.

Ornamental Planting. The beauty of many of our country homes is sadly marred by the injudicious planting of ornamental trees and shrubs. There is no branch of the landscape gardener's art that demands more sound judgment, correct ideas, or refined taste, for it is not enough merely to be able to admire and appreciate a well defined and harmoniously colored landscape, and to judge of its merits or defects, but he must also be able to select the materials, and so arrange or dispose of them as to produce an effect at once the most powerful, agreeable, and perfect, that they are capable of doing. To attain this end the planter requires an amount of skill and knowledge only attainable by perseverance, study, and practice. These remarks apply principally to large and extensive country seats, but also bear weight with regard to less pretentious residences. In former years the rage has been altogether for mixed planting, without regard to the future size of the trees or shrubs planted, or to the effect of the shades of color, either in the summer or fall; but now a more tasteful and natural idea prevails, and planting in groups with reference to the general effect, the ultimate size of the trees, and their coloring in summer and fall, is more generally carried out. Trees having a resemblance to one another in the size and form of their leaves may be associated in groups, but it is more desirable that they possess some other marked characteristic in common, such as color of foliage, bark, or flower, habit of growth, or form, etc. Thus, when depth of color in leafage is desired, fit associates are found in the Purple Beech, Elm, Oak, Hazel, or Barberry; when light colors are wanted they are at command in the Golden Birch, Alder, Elder, or Willow, as also among the naturally silvery-foliaged trees, as the Silver Poplar, Linden, Maple, Huntingdon and other Willows, and Sea Buck Thorn, while among strictly variegated trees and shrubs, there exists a wide field to select from. The autumnal colors and tints of falling foliage deserve marked attention. The rich scarlet and purple of the Oaks, Liquidamber, Nyssa, or Scarlet Maple; the golden-yellow of the Norway and other Maples, Tulip Trees, etc.; the Chestnut, with its yellow and brown; gorgeous festoons of the Virginia Creeper and Yellow Celastrus, contrasting beautifully with the deep green of the Spruces, Hemlocks, or other evergreens. Color in bark is most appreciable when branches are denuded of their foliage, and small groups having distinct colors tend to relieve the dull monotony of the winter and early spring months. White Birch, Linden, Golden Ash, Purple, and Golden Willow, Virgilia lutea, the Red Dogwood, etc., all work in well; while Deutzias, Spiræas, Weigelas, Chinese Magnolias, Tartarian Honeysuckle, the Dwarf Buck-eyes (Pavia), Hawthorns, Japanese Judas Tree, Hydrangea paniculata grandiflora, Rhododendrons, Azaleas, and a host of other equally desirable shrubs, either singly or in groups, may fill up the foreground and give lightness and beauty to the carriage drive and lawn during the whole season. Irregularity of outline to the lawn gives an idea of size, and the margins and points may be well filled up here and there by groups of hardy herbaceous and other plants, Arundo Donax versicolor, A. conspicua, Eulalias, Pampas Grass, etc., in prominent positions in groups, or as single specimens on the lawn.

Ornithi'dium. From *ornis*, a bird, and *eidos*, like; the upper lip of the stigma is beak-like. Nat. Ord. *Orchidaceæ*.

A small genus of curious little Orchids, but not of sufficient beauty or interest to warrant their introduction into the Orchid house. They are regarded as weeds among air plants.

Ornithoce'phalus. From *ornis, ornithos*, a bird, and *kephale*, a head; in reference to the form of the column and anther. Nat. Ord. *Orchidaceæ*.

ORN

A genus of curious little epiphytal Orchids, natives of tropical America. *O. grandiflorus*, a very pretty and desirable species with yellow flowers, is, perhaps, the only species in cultivation.

Ornithochi'lus. From *ornis, ornithos*, a bird, and *cheilos*, a lip; referring to the shape of the labellum. Nat. Ord. *Orchidaceæ.*

A small genus of stove-house Orchids, natives of Burmah and the Himalayas. *N. fuscus* has brownish-yellow flowers striped with purple, and very fragrant. It is often found in cultivation as *Aerides diforme.*

Ornitho'galum. Star of Bethlehem. From *ornis*, a bird, and *gala*, milk. Nat. Ord. *Liliaceæ.*

A rather large genus of bulbous plants, the species of which are natives of southern Europe, western Asia, and the Cape of Good Hope. Several of the species are hardy, and grow so freely as to become a nuisance; this is particularly so with *O. umbellatum*, the pretty little Star of Bethlehem, that has escaped in many places from the gardens into the meadows, and taken almost complete possession, and become very troublesome. *O. caudatum*, a tender species from the Cape of Good Hope, has very large, watery-looking bulbs; the leaves are broad and very long, and they wither and shrivel up at the tip, so as to have a round, tail-like appearance; whence their common name, Long-tailed Ornithogalum. This species is sometimes called Onion Lily, and is a favorite with the Chinese, who grow it in dishes filled with water and gravel. Its tenacity of life is most remarkable, as it will grow anywhere and under almost any circumstances, in water or hung up against a wall in a dry room, in rich earth or poor, indoors or out, and, with slight protection, will endure our winters. Its flower scape is from two to four feet in length, and it keeps in bloom for several months. There is but little beauty in the flowers of most of the species. *O. Arabicum* has large white flowers with a black centre, and has a distinct aromatic odor. *O. thyrsoides* has yellow flowers in dense racemes, twelve to thirty flowered, borne on an erect scape twelve to eighteen inches long. There are several varieties of this species, *O. t. album*, pure white with dark centre; *O. t. aureum*, golden-colored, and *O. t. flavissimum*, much brighter yellow than the type, are all distinct and desirable green-house plants, and are deserving of a place in every collection. All the species are increased by offsets.

Ornithoglo'ssum. From *ornis, ornithos*, a bird, and *glossa*, a tongue; referring to resemblance existing in the petals. Nat. Ord. *Liliaceæ.*

A genus of bulbous plants, with simple or slightly-branched, leafy stems, with green and purple or white flowers, natives of south Africa. They thrive well in sandy loam, and require the same general treatment as Tigrida. Syn. *Lichtensteinia.*

Orni'thopus. Bird's foot. From *ornis, ornithos*, a bird, and *pous*, a foot; referring to the claw-like legumes or seed pods. A genus of *Leguminosæ* of which one species, *O. perpusillus*, a small prostrate herb, is not uncommon in dry, gravelly soils in Great Britain. *O. sativus*, the Serradilla, by some considered merely a variety of *O. perpusillus*, a native of Portugal, is a valuable agricultural plant, introduced to cultivation in 1818, and particularly worthy of attention from the fact of its producing an abundant crop of excellent fodder, where nothing else will grow to perfection.

ORT

O'rnus. Flowering Ash. From *oreinos*, ancient name of the Ash; applied on account of the resemblance and affinity. Nat. Ord. *Oleaceæ.*

Hardy, white-flowered, deciduous trees. The genus includes about a dozen species, all interesting on account of their clustered panicles of pure white flowers, borne at the extremities of the branches. In Sicily several of the species are extensively grown under the name of Manna Ash, the trees yielding the saccharine substance commercially known as Manna, the properties of which are purgative instead of nourishing; consequently it could not have been the Manna that sustained the Hebrews in the wilderness, although it is known by that name at the present day. This genus is included under *Fraxinus* by some authors.

Oroba'nche. A genus of singular-looking parasitic plants, typical of the *Orobanchaceæ*, and represented by a variety of species which grow severally on the roots of Clover, Ivy, Furze, Beans, Tobacco, Hemp, etc. Some of them are agricultural pests, and do a great deal of damage.

O'robus. From *oro*, to excite, and *bous*, an ox; the *Orobus* of Theophrastus was the name of a plant used for fattening cattle. Nat. Ord. *Leguminosæ.*

An extensive genus of hardy perennials, distinguished from *Lathyrus* chiefly by not being of a climbing habit of growth. The majority of the species are very handsome when in flower, which is generally in spring. There is a similarity between many of them; the following are the most distinct: *O. aurantius*, orange-yellow; *O. lathyroides*, bright blue; *O. vernus*, purple and blue, with red veins; and *O. taurica*, orange. *O. pubescens*, *O. canescens*, *O. varius*, and *O. Fischeri*, are also good showy species, but *O. vernus* and its varieties are the handsomest of the species. All are of easy culture, and are increased by seeds or division of the root.

Oro'ntium. Golden Club. Derivation of name obscure. Nat. Ord. *Aroideæ.*

This genus consists of two species of aquatic plants. *O. aquaticum* is common in ponds from Maine to Florida, near the coast. *O. Japonicum*, a native of Japan and the East Indies, has leaves like Lily of the Valley, green on the upper side, and covered with very minute hairs, so that they look like fine velvet. These leaves are readily eaten by cattle and swine in spring. The seeds are boiled and eaten like peas by the natives. This species makes a beautiful plant for the aquarium.

Orpine. A common name for *Sedum Telephium.*

Orris Root. The root of *Iris Florentina.*

Orthosi'phon. From *orthos*, straight, and *siphon*, a curved tube; alluding to the tube of the flower. Nat. Ord. *Labiatæ.*

A genus of perennial herbs or shrubs, natives of the East Indies, the Malayan Archipelago, Africa and Australia. *O. stamineus* has pretty pale lilac-blue flowers, nearly one inch long, arranged in whorls, and these

again in racemes at the ends of the branches, the stamens projecting a long way. It was introduced from tropical Asia in 1869, and is increased by cuttings of the half-ripened shoots.

Orthrosa'nthes. From *orthros*, morning, and *anthos*, a flower; the flowers expand early in the day. Nat. Ord. *Iridaceæ*.

A genus of green-house herbaceous perennial plants, natives of extra-tropical South America and western Australia. *M. multiflorus* is a pretty little plant with beautiful sky-blue colored flowers, of easy culture in a compost of turfy peat and leaf-mould. It is propagated by division of the tufted root-stocks, or by seeds. Syn. *Sisyrinchium cyaneum*.

Orva'la. Said to be from *Orvale*, the French name for Clary. Nat. Ord. *Labiatæ*.

O. Lamoides, the only described species, is a hardy herbaceous plant, producing its pretty purplish red and white flowers in April. It is a native of the south of Europe, and is easily increased by division or by seeds. Bentham and Hooker now include this genus under *Lamium*.

Orychopra'gmus Sonchifolius. A showy plant belonging to the Nat. Ord. *Cruciferæ*. It is a very attractive plant, as its flowers are of a bright violet-blue color, and under good cultivation it attains a height of two feet, the loose terminal racemes of flowers being about half that height. It succeeds well in sheltered localities treated as a half-hardy annual. Syn. *Moricandia*.

Ory'za. Rice. Derived from the Arabic name, *cruz*. Nat. Ord. *Graminaceæ*.

A small genus of grasses, only one of which, *O. sativa*, the common Rice of commerce is of any great importance; and this is one of the most useful and extensively cultivated of all grains, supplying as it does the principal food of nearly one-third of the human race. Like that of all other grains, its native place is unknown, but it is generally supposed to be of Asiatic origin, though recent travellers in South America mention finding the rice-plant apparently in a wild state on the banks of some rivers there. Wherever it may have originated, it is now cultivated in all parts of the globe where the conditions of heat and moisture are favorable for its development. It is adapted to tropical and sub-tropical climates, rather to the latter than the former, and requires much moisture, rather, however, in the soil than in the air. Rice is an annual, varying from one foot to six feet in height. There are as many other distinguishing characteristics of the varieties under cultivation, as there are in the varieties of wheat, barley, or corn. The seed or grain of rice grows on little separate stalks springing from the main stalk; and the whole appearance of the plant, when the grain is ripe, may be said to be intermediate between that of barley and of oats. It flourishes best in low marshy grounds which can be overflowed, and tide-water swamps are particularly favorable for the crop.

There is another species, *Oryza mutica*, which grows upon dry lands and the sides of mountains, largely cultivated in Ceylon and Java, and to some extent in southern Europe. There is a variety of this species known as "Cochin China," which is considerably grown in dry soils in North Carolina, Virginia, and to some extent in Maryland. It is not equal in quality to that grown in marshy soils, neither is it as productive, as its yield hardly exceeds fifteen to twenty bushels per acre, while the rice grown in wet ground, and flooded, produces thirty to sixty and under the most favorable circumstances nearly one hundred bushels to the acre, each bushel weighing from forty-five to forty-eight pounds of clean rice.

Osage Orange. See *Maclura aurantiaca*.

Osbe'ckia. Named after *Peter Osbeck*, a Swedish naturalist. Nat. Ord. *Melastomaceæ*.

A genus of green-house evergreen and deciduous shrubs and herbs, natives of tropical Asia, Africa, and the adjoining Islands. The rose, purple, or violet flowers are borne in terminal racemes. *O. Nepalensis* (syn. *Melastoma Nepalensis*) has large, handsome, purplish, rose-colored flowers, and is well worthy of a place in any collection. Several other species are in cultivation; they are all easily propagated by cuttings of the half-ripened shoots.

Osier. Any of the Willows grown for their long flexible shoots, which are largely used in basket-making, are called Osiers. The one most extensively grown, and considered the best for this purpose, and to which the name is generally applied, is *Salix viminalis*, or Basket Osier.

Osma'nthus. From *osme*, perfume, and *anthos*, a flower, in allusion to the fragrance of the flowers. Nat. Ord. *Oleaceæ*.

A small genus of half-hardy glabrous shrubs or trees, natives of eastern Asia, North America, and the Pacific Islands. *O. fragrans* (syn. *Olea fragrans*), a native of Japan, China, etc., is a handsome shrub with serrated leathery leaves, and yellowish or almost white, exceedingly fragrant flowers. *O. aquifolium* (syn. *O. illicifolium*) is a very handsome evergreen shrub, somewhat resembling a Holly, with leathery, smooth, shining leaves, varying considerably in their size and toothing. There are several white and yellow variegated varieties in cultivation, all well deserving a place in the cool green-house. They may be propagated by cuttings, but are more rapidly increased by grafting on the Privet.

Osmorhi'za. Sweet Cicely. From *osme*, scent, and *rhiza*, a root; roots sweet scented. Nat. Ord. *Umbelliferæ*.

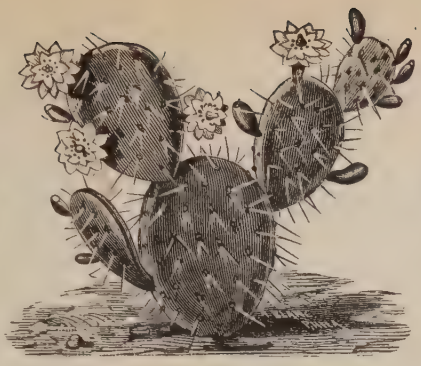
A small genus of uninteresting herbaceous perennials. They are common in rich, moist woods, and are popularly known as Sweet Cicely.

Osmu'nda. Flowering Fern. From *Osmunda*, one of the names of Thor, a Celtic deity. Nat. Ord. *Polypodiaceæ*.

A genus of ornamental Ferns, found widely distributed throughout the temperate regions of both hemispheres. A well-known species is *O. regalis*, or Royal Fern. There are several species common in swamps and wet places throughout the United States. Most of them bear transplanting well, and make beautiful plants for a shady border.

Osteospe'rmum. From *osteon*, a bone, and *sperma*, seed; referring to the hardness of the seed. Nat. Ord. *Compositæ*.

OSMUNDA REGALIS.



OPUNTIA.

OXALIS VALDIVIANA.

OXALIS TETRAPHYLLA.

OXALIS ROSEA.

OXYURA CHRYSANTHEMOIDES.

OURISIA COCCINEA.

OXALIS BOWIEI.

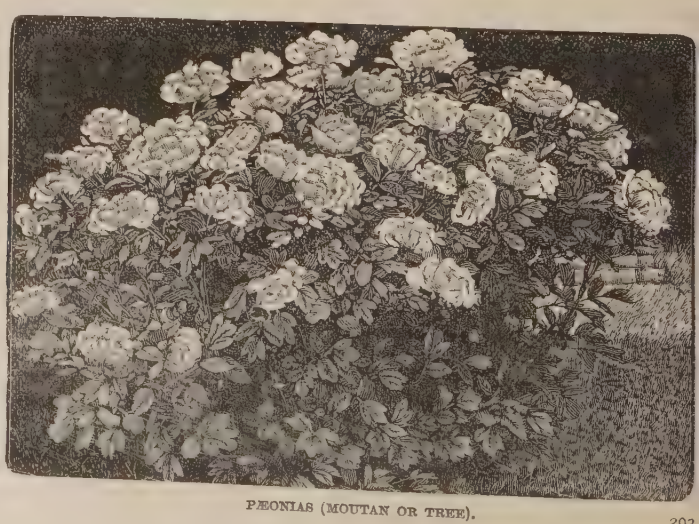
PANDANUS JAVANICUS.

PÆONIA TENUIFOLIA FL. PL.

PÆONIAS (HERBACEOUS).

PANCRATIUM CALATHINUM.

PALAVA FLEXUOSA.



PÆONIAS (MOUTAN OR TREE).

A genus of green-house shrubs, natives of South Africa. They are rather ornamental plants with yellow flowers, some of which are in cultivation in European collections.

Ostrich Fern. See *Struthiopteris.*

Ostro'wskia. Named in honor of the Russian botanist, *Ostrowski.* Nat. Ord. *Campanulaceæ.*

O. magnifica, the representative species, is a beautiful hardy herbaceous plant, introduced from the mountains of eastern Bokhara. It grows about four feet high, bearing large mauve-colored flowers, four to six inches across. It forms a deep-reaching tuberous root about two feet long, after the fashion of Platycodon grandiflora. It flowered for the first time in Europe in 1887.

O'strya. Hop Hornbeam, Iron Wood. From *ostroyos,* a scale; scaly catkins. Nat. Ord. *Corylaceæ.*

O. Virginica, the only native species, is a tree of moderate size, remarkable for the extreme hardness of its wood. It is of slow growth, forms a compact top, with small green leaves. The furrows of its bark are extremely fine, by which it is readily distinguished.

Ossæ'a. Named after *Don Antonia de la Ossa,* once director of the Botanic Gardens at Havana. Nat. Ord. *Melastomaceæ.*

A genus of about forty species of shrubby plants, natives of tropical America. *O. fascicularis,* probably the only species in cultivation, is a very showy plant, with white flowers borne in many-flowered bunches. It was introduced from Jamaica in 1822, and is propagated by cuttings of the half-ripened shoots.

Ossified. Becoming like bone; hard, brittle, and close in texture like a peach stone.

Oswego Tea. See *Monarda didyma.*

Osy'ris. From *ozos,* a branch; alluding to the numerous pliant branches. Nat. Ord. *Santalaceæ.*

A small genus of green-house evergreen shrubs, natives of southern Europe, Africa, and the East Indies. *O. alba,* probably the only cultivated species, has small white flowers borne in clusters on the branchlets, and is propagated by cuttings of the ripened shoots in heat.

Otaheite Chestnut. A common name for *Inocarpus Edulis.*

Otaheite Myrtle. *Securinega durissima.*

Otho'nna. Ragwort. From *othone,* linen; referring to the soft, downy clothing of the original plant. Nat. Ord. *Compositæ.*

An extensive genus, the species of which are mostly coarse-growing green-house or frame annuals, perennials, and low shrubs. With but few exceptions the flowers are yellow. They are natives of the Cape of Good Hope, and the African shores of the Mediterranean. But few of the species merit a place in the garden. *O. crassifolia,* one of the Cape species, is a handsome and showy plant, of a trailing habit, with singularly glaucous and fleshy leaves, and handsome yellow flowers, opening only in the sunlight. It is particularly well adapted for planting under shrubs, or for baskets, vases, or rustic designs. It grows freely in a light soil, and is increased by cuttings.

Othonno'psis. From *Othonna,* and *opsis,* like; in allusion to the resemblance which exists between the two genera. Nat. Ord. *Compositæ.*

A genus of glabrous green-house shrubs, differing from the allied genera, *Othonna* and *Senecio,* in the disk being constantly sterile. *O. cheirifolia* (Wall-flower leaved), probably the only species in cultivation, is a very pretty, low-spreading evergreen plant with rich yellow flower-heads nearly two inches across. It was introduced from north Africa in 1752, and is increased by cuttings or division. Syn. *Othonna cheirifolia.*

Otte'lia. From *Ottel,* the native name in Malabar. Nat. Ord. *Hydrocharidaceæ.*

A genus of stove or green-house aquatic herbs, widely distributed over tropical and sub-tropical countries. Two species, one *O. Indica,* from the East Indies, with white, and the other *O. ovalifolia,* from Australia, with yellow flowers, are in cultivation and require to be grown in a cistern or pan of water. Syn. *Damasonium.*

Ouri'sia. Named in honor of Governor *Ouris,* of the Falkland Islands, from whom Commerson obtained the plant. Nat. Ord. *Scrophulariaceæ.*

A small genus of handsome green-house plants from South America and Australia. *O. coccinea,* is a very beautiful species with a short creeping stem, cordato-ovate crenate leaves, mostly radical; and an erect scape a foot or more in height, bearing a raceme of drooping crimson flowers arranged in opposite pairs. Some of the species are said to be hardy. Introduced in 1860.

Ouvira'ndra. Lattice or Lace-leaf Plant. From *ouvirandrano,* the native name; signifying water-yam, the roots being eatable. Nat. Ord. *Naidaceæ.*

A genus of aquatic plants, natives of Madagascar. They are popularly known as the Lattice or Lace-leaf Plants, from the singular appearance of the leaves, resembling open lattice-work, or apparently consisting of only a skeleton of nerves. The leaves grow in radiating clusters from the rhizome, and float just beneath the surface of the water, presenting a flat side to the light. The plant is not only curious, but a valuable one to the natives of Madagascar, who collect its fleshy, farinaceous roots as an article of food. It grows on the margins of running streams in shallow water. It is rare in collections, and is one of the most interesting plants for the aquarium.

Oval. The same as Elliptic.

Ovary. That part of the pistil which contains the ovules or seeds.

Ovate. Egg-shaped.

Ovoid, Ovoidal. A solid with an oval figure, or resembling an egg.

Ovule. The young seeds of plants contained in the ovary.

Oxali'deæ. A tribe of *Geraniaceæ.*

O'xalis. From *oxys,* acid; the leaves have an acid taste. Nat. Ord. *Geraniaceæ.*

This genus comprises a great number of species, differing widely in their habits and manner of growth. Some are annuals, some herbaceous perennials, and some are green-

house shrubs. Many have tuberous roots, others are bulbs. Some are tender, others perfectly hardy. The flowers are always handsome in form and beautiful in color. The leaves vary considerably, but they are most commonly trifoliate and slightly acid. Many of the species are grown in the green-house, one of the most useful being *O. floribunda*, which was introduced from Brazil in 1829. This very beautiful species requires protection during winter. It has bright rose-colored flowers, which are produced in great abundance during nearly the whole year. There is a variety of this species with pure white flowers. Both are rapidly increased by division of the root. Of the bulbous species, *O. Bowiei* is decidedly the handsomest. The flowers are large and of a most brilliant rose color, and produced in the greatest profusion. This is generally cultivated as a green-house species; it will, however, endure our winters if planted in a rockery or in the border; and so tenacious is it of life that it will dispute possession with almost any other plant in the bed. This species was introduced from the Cape of Good Hope in 1824. *O. tetraphylla*, four leaved (syn. *O. Deppei*), and *O. lasiandra* (woolly-stamened) continue in bloom nearly all summer and are very effective planted in groups in the herbaceous border or rockwork. The bulbs require to be taken up and kept from frost during winter. One of the most desirable for conservatory decoration is *O. lutea*, another Cape species, with large terminal clusters of golden yellow flowers, on long slender scapes; there is a beautiful double variety of this species. *O. Valdiviensis* is a charming little hardy, annual species with bright yellow flowers; introduced from Chili in 1862. *O. versicolor* is still another beautiful species. It requires the sunlight to expand its flowers; but they are generally thought to be more beautiful when closed than when open. The colors are crimson, white, and a pale shade of yellow. It is rapidly increased by offsets. *A. acetosella*, our common Wood Sorrel, is a native of Great Britain, and by naturalization has become common throughout the States. All the species under cultivation are either from the Cape of Good Hope or South America, and all alike are of easy culture.

Oxe'ra. From *oxeros*, sour; in allusion to the acrid taste. Nat. Ord. *Verbenaceæ*.

A genus of about ten species of climbing shrubs, natives of New Caledonia. *O. pulchella*, the only species yet in cultivation, is a very handsome, green-house climber, with large, yellowish-white flowers, two inches long, between funnel and bell-shaped, and is of easy culture; increased by cuttings.

Ox-eye. See *Heliopsis*.

Ox-eye Daisy. See *Leucanthemum*.

Oxlip. *Primula elatior*.

Oxya'nthus. From *oxys*, sharp, and *anthos*, a flower; referring to the sharp-toothed calyx and corolla. Nat. Ord. *Rubiaceæ*.

A genus of white-flowered evergreen shrubs from Sierra Leone, allied to Gardenia, and requiring the same treatment in cultivation and propagation.

Oxyco'ccus. Cranberry. From *oxys*, sharp, and *kokkos*, a berry; sharp acid taste of the berries. Nat. Ord. *Vacciniaceæ*.

"The Cranberry is a familiar trailing shrub, growing wild in swampy, sandy meadows and mossy bogs in the northern portions of both hemispheres, and produces a round, red, acid fruit. Our native species, *O. macrocarpus*, so common in the swamps of New England, and on the borders of our inland lakes, as to form quite an article of commerce, is much the largest and finest species; the European Cranberry, *O. palustris*, being much smaller in its growth, and producing fruit inferior in size and quality. The Russian, *O. viridis*, is also a medium-sized variety. Of *O. macrocarpus*, there are three varieties: the 'Bell-shaped,' which is the largest and most valued, of a very dark, bright red color; the 'Cherry,' two kinds, large and small; the large one the best, of a round form, a fine, dark, red berry, nearly or quite equal to the Bell-shaped; and the Bugle Oval, or Egg-shaped, two kinds, large and small, not so highly colored as the Bell or Cherry, and not so much prized, but still a fine variety."—*Downing*. Cranberry culture, where the conditions are favorable, is very profitable; and as the subject is receiving much attention, both in this country and in Europe, it may be of service to give a few facts in regard to the best methods of raising Cranberries successfully. The selection of land for the cultivation and growing of the plants is the first consideration; for, unless it is adapted to their growth, it will be useless to plant them. The soil best adapted is low, moist land, suitably drained, so that the water will be from twelve to eighteen inches lower than the surface of the ground. They will grow on moderately damp soil that can be plowed or cultivated, so as to make it friable and soft, or on the borders of streams or ditches, as the plant draws its nourishment from air and water; light sandy soil or muck covered with two or three inches of sand is the best adapted to their culture. They will not do well on *dry* sand or clay. If planted on rich muck or loam, they grow rank and strong, sometimes eight or ten feet, and cover the ground with a net of vines three or four inches thick. As the fruit grows on the end of the shoot, the rank growth throws out but few buds; but if sanded over, the shoots are of short growth, and throw out more and stronger fruit buds. There are large portions of land all over our country that is now of but little value, too wet or too cold for grass, that would grow large quantities of fruit, if properly prepared by draining and sanding. In preparing the ground, if it be wet and spongy, it should be well drained, so as to leave the water about ten or twelve inches below the surface. It can then be prepared by burning over and removing the top soil, carting it off for compost, or burning when it is dry; by leveling the ground, and covering it with pure sand (free from seeds or weeds), two or three inches deep, to keep the surface loose, and to prevent foul grass from choking the plants. Some growers prefer to put on two or three inches of sand (on the ice), and after two years' growth, to put on one or two inches more, which, we think, is an improvement. The sand should not be mixed with the soil, but placed in a layer of two inches over it; it will thus keep down all weeds. The roots of the Cranberry are very fine, and do not retain

their vitality; but the plant throws out new roots from the stem. In putting out the young plants, make a hole four or five inches deep, with a stick or dibble, in which place the plant, and press the soil around it firmly with the foot. Leave an inch to an inch and a half of the young vine above ground. When planting, if practicable, water freely, to settle the sand around the plant; the stem will soon begin to grow. They are very tenacious of life, and if, when received, they are apparently dry, put them into water from five to six hours before planting; they will regain their freshness and be sure to grow. Where failures have occurred, it has been owing to their having been taken from the parcel and put out in a dry soil. Another plan adopted by some growers, is to take the vines up without roots, often four or five feet in length, which they cut and sow in drills, or lay the vines down in a trench, and cover with soil, or with a stick two inches wide and half an inch thick, crowd the vines down into the soil three or four inches deep. It will take eight to ten barrels of clean vines per acre. In this case they are not planted so deep, and are not so apt to live as when planted with a dibble, as advised above, with the roots attached. They are usually sold in parcels of 100 each, and will pack more closely and cost much less than barreled vines, and are the only kind that can be forwarded by mail. Ten thousand of these will plant more ground than eight or ten barrels of vines. If placed two feet apart each way 10,000 will plant an acre; they can be cultivated with a cultivator or horse hoe, to keep down grass and weeds; and after one or two years of cultivation they will take care of themselves, or it will only be necessary to pull out what little grass may grow. If wanted in small patches or in gardens, they can be planted a foot apart, and will cover the ground much sooner. Vines usually sold by the barrel have clinging to the roots earth that is full of the seeds of weeds, which are introduced into the soil, demanding much labor to keep the plants clean; it is therefore better to purchase clean vines. The Cranberry can be planted out at almost any season of the year when the ground is not frozen; in the fall from September until the ground freezes; in spring, until July; in the South or West, from October to March. If the vines are received too late for planting, or if frozen, they can be covered with earth or damp moss in a box, and placed in a cellar until they can be planted out, after being placed in water for a few hours. Overflowing or flooding is desirable, if not indispensable to complete success. The water may remain on the vines until the 10th of May in the latitude of N. Y., or until there is no danger from frost. It may cover the vines from one to two feet or more, and if it can be let on or off at will for a few hours during the season, it will prevent drought, and also destroy the worm, which is sometimes very destructive. The water should not stand on them when in flower, as it would injure the pollen and prevent fruiting, or when the fruit is quite green. The best known and most extensively cultivated is the Bell, of which there are two or three varieties. The Cape Cod Bell is the best known, and has been more extensively cultivated than any other variety. The color is a dark red, but it often

varies in color and shape on different soils, but its bearing and ripening qualities are the same, being of good size and medium early. The Bugle is an old variety, rather early, of medium size to large, a good keeper, color dark scarlet, and a medium bearer. The Cherry generally grows on wet soil or moist upland. Of this there are a number of varieties; but the one most commonly planted is of medium size, round shape, bright red color, a good bearer, but rather later than other varieties; it is a leading market sort. Another, called Mottled Bell pink on white ground, is a very handsome fruit, but late and little grown. Two new varieties have lately been introduced, which, by a number of years' cultivation, we think superior to the above in several particulars, being early and constant bearers when others fail, and in the future they are likely to become leading sorts. In some sections there would have been a short crop but for these kinds. The Eaton's Early Black Bell stands first. It ripens very early, is fully colored by the 5th of September in New England, is uniform in color and shape, of a very handsome dark red color, almost black, of medium and uniform size, a great and constant bearer, a good keeper, and the vines hardy; and being early, it brings the highest price in market. The Mansfield Creeper was first discovered in a corn-field, and transplanted to a Cranberry bed. In its new position it was found to be entirely different in its growth and habit from all other varieties. It seemed to creep on the ground and take root at every joint, producing bearing shoots every two or three inches on the vine, and throwing out fruit buds for a fresh start another year. It is a few days later than the Eaton Bell. Both are adapted to upland culture. It is of large size and a great bearer; the flesh is more tender, and not so acid; color dark scarlet on one side, the other side nearly white, and slightly mottled; shape roundish oval. It is a fine keeper. A writer in the New Hampshire "Journal of Agriculture" describes a plot of nearly three-fourths of an acre, completely covered with beds of Cranberries, the vines "thickly matted and in a flourishing condition." The grounds, which were naturally slightly moist, were prepared as for Strawberries, and then planted with Cranberry vines. They were placed in rows or beds, in the same manner as Strawberry plants, and then served with a top dressing of meadow mud, which had been taken from its natural bed and exposed to the frosts of one winter, by which it was rendered very loose and friable. They were afterward cultivated with the hoe until they had completely covered the ground, simply passing between the beds, pulling out such weeds and grass as might occasionally be seen growing among them, and killing the worms, if any were found on the plants. The proprietor succeeded in obtaining a good crop, or an average of 160 bushels to the acre. The fruit was of excellent quality, and sold readily for one-third more than the common uncultivated Cranberry of the swamps in that vicinity. The above writer considers any soil that will produce a crop of Indian corn suitable for a Cranberry plot. In regard to the success of Mr. Bates in his method of culture, Mr. B. G.

Boswell, of Philadelphia, gives the following testimony, viz.: "As the plant naturally grows in a very wet soil, it is generally supposed that it will not thrive in a dry soil, but this idea is erroneous. Mr. S. Bates, of Massachusetts, has grown the Cranberry on a dry soil for several years, with the utmost success. His method is to plow the land, spread on a quantity of swamp muck, and after harrowing the soil thoroughly, set out the plants in drills twenty inches apart, hoeing them the first season, after this no cultivation is needed. By the above method the plants will cover the ground in three years." It is hoped that the above details will prove of service to those about to embark in the culture of this useful fruit. The Cranberry is also adapted to garden culture. Every family can have a garden patch. A moist but not clayey soil should be selected, and the ground prepared by plowing or spading, as for Strawberries. The entire surface should be covered one or two inches with fine muck, or one or two inches of sand can be substituted. They can be planted one foot to eighteen inches apart, and four to six inches in depth. They are also highly ornamental in pots, the fruit hanging on the vines until the flowers appear for the next crop. Experiments in New England indicate that the Cranberry can be cultivated on upland, though generally with moderate success. On Long Island, however, there are Cranberry patches of five or six acres, on upland soil, that produce from 50 to 100 bushels per acre, which is considered a satisfactory result, as manure is unnecessary, and the trouble of cultivating, gathering, and marketing the Cranberry is less than that required by the Strawberry or any of the small fruits.

Oxyde'ndron. Sorrel-tree. From *oxys*, sour, and *dendron*, a tree; in allusion to the foliage being sour to the taste. Nat. Ord. *Ericaceæ*.

O. arboreum, the only species, is found in rich woods in Pennsylvania, Ohio, and southward, has deciduous leaves the size and shape of those of a Peach. It bears its flowers in long one-sided racemes, clustered in an open panicle, terminating the branches of the season, and forms a tree from fifteen to forty feet high.

Oxylo'bium. From *oxys*, sharp, and *lobos*, a pod; the seed-pods ending in a point. Nat. Ord. *Leguminosæ*.

Handsome spring-flowering green-house plants from New Holland. They should be occasionally stopped while young, to ensure dwarf, bushy specimens. The flowers are orange and yellow, are freely produced, and very pretty. They are increased by cuttings or from seed. Introduced in 1805.

Oxype'talum. From *oxys*, sharp, and *petalum*, a petal; sharp pointed.

A genus of *Asclepiadaceæ*, comprising about fifty species of perennial herbs or sub-shrubs, mostly natives of South America, with blue, white, or purplish flowers. *O. cæruleum*, is a charming climber, remarkable for the changes in color exhibited by the flower at various stages of its existence. When first open it is pale blue, with a slight tinge of green; then purplish, and when withered, lilac. All are propagated by cuttings. Introduced in 1852.

Oxyra'mphis. From *oxys*, sharp pointed, and *ramphos*, a beak; referring to the beaked keel-petal. Nat. Ord. *Leguminosæ*.

O. macrostyla, the only described species is a very pretty green-house plant, with showy purplish-crimson flowers. It was introduced in 1837, and is easily grown and propagated.

Oxy'ria. Mountain Sorrel. From *oxys*, acid; the leaves are sour to the taste. Nat. Ord. *Polygonaceæ*.

Low alpine perennials with round-kidney-form and long petioled leaves, chiefly from the root, obliquely truncate sheaths, and small greenish flowers clustered in panicled racemes on a slender scape. *O. reniformis*, a native of Britain and *O. digyna*, found in the alpine regions of the White Mountains, are sometimes cultivated and are interesting plants for the rock garden.

Oxy'spora. From *oxys*, sharp, and *spora*, a seed; in allusion to the seeds being awned at both ends. Nat. Ord. *Melastomaceæ*.

A small genus of very handsome, slender, erect, or almost scandent plants, natives of eastern Bengal, and the Malayan Archipelago. *O. paniculata*, the only cultivated species, has drooping panicles, often a foot long, of bright rose-colored flowers. It is of easy cultivation, and may be increased by cuttings. Introduced in 1826.

Oxy'tropis. From *oxys*, sharp, and *tropis*, a keel; the keel petal ends in a sharp point. Nat. Ord. *Leguminosæ*.

An extensive genus of hardy herbaceous perennials, mostly natives of Siberia, a few are found in Europe. They are nearly allied to Astragalus. *O. cyanea*, from the Ural Mountains, is dense-growing plant with silvery, pinnate leaves, of dwarf habit, producing spikes about six inches high of bluish-purple flowers in June. It is a slow growing plant, well adapted for the border, and can be readily increased from seeds. Introduced in 1818. *O. montana*, an Austrian species, is of similar habit, with pendant spikes of dark purple flowers, which are succeeded by large inflated pods.

Oxy'ura. Supposed to be from *oxys*, sharp, and *oura*, a trail; but the application is not very apparent. Nat. Ord. *Compositæ*.

O. chrysanthemoides, the only species, is a hardy annual with yellow flowers, somewhat resembling the *Chrysanthemum*; it is a showy plant, and easy to grow. It is a native of California, and was introduced in 1834. This genus is now included under Layia, by some botanists.

Oyster Plant. A common name for Salsify, which see.

Oyster Plant. British. *Mertensia maritima.*

Ozotha'mnus. From *ozein*, to smell, and *thamnos*, a shrub; alluding to the odor of the plant. Nat. Ord. *Compositæ*.

A genus of nearly hardy shrubs, mostly natives of Australia. *O. rosmarinifolius*, has white flower heads, in dense corymbs, forming a large leafy panicle. It forms a handsome shrub and will prove hardy, south of Washington. It is readily propagated by cuttings of the half ripe wood.

P.

PAC

Pachide'ndron. From *pachys*, thick, and *dendron*, a tree. Nat. Ord. *Liliaceæ*.

A genus of tree Aloes, increased from suckers, or young side shoots, when they are produced; leaves taken off close from the stem, and laid to dry for a few days, then planted in dry soil, will produce young plants at the base. This genus is now included under *Aloe* by many botanists.

Pachi'ra. The native name of the trees in Guiana. Nat. Ord. *Malvaceæ*.

A genus of very handsome dense-foliaged trees, natives of tropical America. They are commonly known in cultivation as *Carolineas*, but owing to their size, are seldom seen except in large collections.

Pachyphy'tum. From *pachys*, thick, and *phyton*, a plant; referring to the fleshy leaves. Nat. Ord. *Crassulaceæ*.

P. bracteosum is a green-house succulent, allied to *Echeveria*, and grown for its unique appearance. There are other species, but they are less ornamental than this. Included by some under *Cotyledon*.

Pachyrhi'zus. From *pachys*, thick, and *rhiza*, a root; alluding to the thick, tuberous roots of the plants. Nat. Ord. *Leguminosæ*.

A small genus of tall, twining plants, natives of the warmer parts of Asia, Africa and America. The flowers of *P. angulatus* are of a beautiful blue color, and are borne in long racemes. It is cultivated in the tropics for its large turnip-like, tuberous roots, which are eaten either raw or boiled. It was introduced in 1781, and is propagated by cuttings or by seeds.

Pachysa'ndra. Mountain Spurge. From *pachys*, thick and *aner, andros*, a stamen; referring to the thickness of the stamens. Nat. Ord. *Euphorbiaceæ*.

A small genus of hardy herbaceous plants of more botanical than horticultural interest. Of the two species, one, *P. procumbens*, is a native of this country, the other, *P. terminalis*, was introduced from Japan in 1882.

Pachysto'ma. From *pachys*, thick, and *stoma*, a mouth; alluding to the thick lip. Nat. Ord. *Orchidaceæ*.

A genus of stove-house terrestrial Orchids, natives of the East Indies and the Malayan Archipelago and tropical Africa. *P. Thompsoniana*, an African species, with large white flowers, shining as if varnished, is the most interesting of the genus and the most generally cultivated.

Paddy. A name for unhusked Rice.

Pædero'ta. From *paideros*, a name applied by the ancients to a species of *Acanthus*. Nat. Ord. *Scrophulariaceæ*.

A genus comprising two species of dwarf hardy perennial herbs, inhabiting the mountains of central and eastern Europe. The yellow or blue flowers are disposed in dense terminal spikes. They are usually treated as annuals, and require a dry, airy situation, forming excellent plants for the rock-garden.

PÆO

Pæo'nia. Named after the Greek physician *Pæon*, who is said to have employed it in medicine, and used it to cure Pluto of a wound inflicted by Hercules. Nat. Ord. *Ranunculaceæ*.

The Pæonies common in our gardens are divided into two groups, viz., those which are allied to the Tree Pæony (*Pæonia Moutan*), and which are all more or less shrubby, and the common herbaceous Pæonies. The herbaceous Pæonies are well-known ornaments of our gardens, where they are great favorites, from their showy flowers, their great hardiness, and their easy culture; all essential qualities for a large garden, and for such only are they desirable. The roots of these plants are composed of bundles of carrot-like tubers, which may be separated from each other to increase any particular species or variety; or the tubers of the common Pæonies may be grafted with shoots of any choice kinds. The Tree or shrubby species are chiefly increased by grafting on the roots of the herbaceous sorts. Of the herbaceous species, *P. officinalis*, the old double crimson, was the first introduced into English gardens, having been brought from Switzerland in 1548, where it is indigenous, as well as in many other parts of Europe and Asia. *P. albiflora*, the old double white, is a native of Siberia, and was introduced at about the same period. *P. tenuifolia*, the Fern-leaved Pæony, is a native of Russia, from whence it was introduced in 1765. The fine, Fern-like foliage of this species renders the plant a beautiful object independently of its brilliant flowers. There is a double variety of it. From a limited number of species, several hundred hybrids have been produced, many of which are very beautiful, but scarcely superior to the species, yet necessary to keep alive the interest in the genus. One or two herbaceous species have been found in Oregon and California, but are inferior to the European species. *P. Moutan* and its varieties are natives of China and Japan, principally on Mount Ho-an, where it is reported they grow to the height of ten feet. The native species is purple, but there are white, pink, pale purple, and mottled varieties. Until the second half of this century only such sorts as had white, rose, salmon, and lilac-colored flowers were known; and we are indebted to Mr. Fortune for the introduction of his Chinese varieties, most of which have scarlet, violet, and magenta-colored flowers. Von Siebold, too, introduced a number of Japanese varieties, which however form a different race, and are mostly single or semi-double. Each year they increase in size and beauty, and soon become the most attractive features of the garden. They are the first of any of the varieties of Pæonias to flower, and put forth their blooms early in May. Grown in pots they may be forced into flower during winter and are excellent subjects for conservatory decoration. Many beautiful varieties have of late years been produced from seed. The shrubby species were first introduced in 1794.

Pæo'ny. See *Pæonia.*

Pagoda-tree. Chinese. A name given to *Sophora Japonica, Plumieria acuminata,* and *Ficus Indica.*

Paigle. An old name for the *Cowslip.*

Painted. A term used in cases where colors are arranged in streaks of unequal density.

Painted Cup. See *Castilleia.*

Paint Root. See *Lachanthes.*

Palafo'xia. Named by Lagasca, in honor of *Palafox,* a Spanish general. Nat. Ord. *Compositæ.*

A genus of rather coarse-growing herbaceous and shrubby perennials, with white, flesh-colored, or purple flowers, produced in rather loose paniculate or corymbose heads. *P. Hookeriana,* a native of Mexico is a pretty dwarf annual species, forming a dense tuft about one foot high. The flowers are produced freely in loose clusters and are of a pleasing rosy-pink hue. Several of the species are common from Carolina to Texas.

Palate. The mouth of a ringent, or gaping flower.

Pala'va or **Pala'via.** In honor of *A. Palau y Verdera,* once professor of botany at Madrid. Nat. Ord. *Malvaceæ.*

A small genus of Peruvian herbaceous annuals, producing small pink or purple flowers on long axillary stalks; rarely cultivated excepting in botanical collections.

Paleæ. Membraneous scales resembling chaff. The inner scales of the flower in grasses are pales.

Palestine Lily. *Arum Palestinum.* See *Arum.*

Palicou'rea. Named after *Le Palicour,* of Guiana. Nat. Ord. *Rubiaceæ.*

A large genus of tropical American shrubs of variable habit, with four-angled branches. They form very pretty shrubs, with variously colored (never blue) flowers. Only a few species are in cultivation. Syn. *Psychotria.*

Paliso'ta. Named in honor of *Palisot de Beauvois,* a French botanist and traveler. Nat. Ord. *Commelinaceæ.*

A genus of perennial herbs, natives of Africa. *P. bicolor* has large bright green leaves, with broad disk of greenish-yellow, the margins being studded with stiff brownish hairs. It grows from one to two feet high, and is a very elegant ornamental-leaved plant. Introduced from Fernando Po in 1878.

Paliu'rus. Christ's Thorn. Name of a town in Africa. Nat. Ord. *Rhamnaceæ.*

There are but two species in this genus, both hardy deciduous shrubs, natives of southern Europe and western Asia. They are handsome shrubs, well adapted for shrubberies. The fruit of *P. aculeatus* is very singular, appearing like a head with a broad-brimmed hat on, whence its French name Porte Chapeau. This is the plant that is supposed to have furnished the thorns used for plaiting the crown placed upon Christ's head before His crucifixion. It has flexible branches, capable of being easily plaited; and each leaf has two sharp spines at its base, one of which is straight and erect, and the other curved and bent downward so as to form a hook. There is some difference of opinion as to whether this is the plant that afforded the

"thorns," or whether it was *Zizyphus spina-Christi,* for both of which the distinction has been claimed. It is commonly used for hedges in the East, and its seeds are considered medicinal by Turkish doctors, and are also used as a dye.

Palm. A general name for the plants belonging to the order *Palmaceæ.* Also popularly applied to *Salix caprea* when in flower.

Palm. Australian Feather. The genus *Ptychosperma.*
Bamboo. *Raphia vinifera.*
Betel-nut. *Areca Catechu.*
Bourbon. The genus *Latania.*
Broom. *Attalea funifera,* and *Thrynax argentea.*
Cabbage. *Oreodoxa oleracea* and *Chamærops Palmetto.*
Cabbage. New Zealand. *Cordyline Australis.*
Catechu. *Areca Catechu.*
Cocoa-nut. *Cocos nucifera.*
Cocoa-nut, Double or Sea. *Lodoicea Seychellarum.*
Coquito. *Jubæa spectabilis.*
Date. *Phœnix dactylifera.*
Doom or Doum. *Hyphæne thebaica.*
Dragon's Blood. *Calamus Draco.*
Fan. A name applied to any Palm which has fan-shaped leaves.
Fan, European. *Chamærops humilis.*
Fan, Jamaica. *Sabal Blackburniana.*
Hemp. *Chamærops excelsa.*
Ivory-nut. *Phytelephas macrocarpa.*
Jaggery. *Caryota urens.*
New Zealand. *Areca Sapida.*
Norfolk Island. *Kentia Baueri.*
Oil. *Elæis guineensis,* and *Cocos butyracea.*
Palmetto. *Sabal* (*Chamærops*) *Palmetto.*
Palmyra. *Borassus flabelliformis.*
Parlor. *Aspidistra lurida.*
Peach. *Gulielma speciosa.*
Pissiaba. *Attalea funifera,* and *Leopoldinia Piassaba.*
Raffia or Roffia. *Raphia Ruffia,* and *R. tædigera.*
Rattan. *Calamus rotang, C. rudentum,* and other species.
Sago. *Sagus lævis, S. Rumphii,* and *Cycas circinalis.*
Talipot. *Corypha umbraculifera.*
Thatch. *Sabal Blackburniana.*
Toddy. *Caryota urens.*
Umbrella. *Kentia Canterburyana.*
Wax. *Ceroxylon* or *Iriartea andicola.*
Wax of Brazil. *Copernicia cerifera.*
Wine, Brazilian. *Mauritia vinifera.*

Palma'ceæ. A large natural order pre-eminent in the whole world of Plants for the grandeur and beauty attained by many of the species. They are arborescent plants, with simple, rarely branched trunks, marked with the scars of the leaves, which are terminal, pinnate, or fan-shaped, with plicate vernation and parallel simple veins, and often with spiny petioles. Natives of tropical regions chiefly, they impart to them much of their botanical features. The greater part of them have unbranched stems, which sometimes attain a height of a hundred feet, and send out clusters of large leaves, from the axils of which bunches of flowers proceed. Although the flowers are small, the inflorescence, taken collectively, very often has a most imposing aspect. Linnæus called them the Princes of the Vegetable Kingdom, a designation which

they well deserve. Martius estimates the species at nearly six hundred, of which about one-sixth have fan-shaped leaves. They have been divided by him into various tribes, depending chiefly on the nature of the ovary ovules and fruit; and sections are formed according as the leaves are pinnate or flabelliform, and the stems spiny or not. The properties of the plants of this order are quite various. In the countries in which they grow, they are used for supplying food and for forming habitations. The fruit of some is edible. Many supply oil, wax, starchy matter, and sugar, the last being fermented so as to form an intoxicating drink. Their fibres are employed for ropes, and the reticulum surrounding their leaves is sometimes manufactured into brushes and brooms. These products also enter largely into commerce, and are sources of very considerable wealth. The Palm of the Bible seems to be *Phœnix dactylifera*, or Date Palm, the drupaceous fruit of which supplies food to many of the inhabitants of Arabia and Africa, and is largely exported to different parts of the world, the United States receiving a large share. *Cocos nucifera*, the Cocoanut Palm, is one of the most useful of the family, supplying food, clothing, materials for houses, and utensils of various kinds, besides ropes and oil. The Cocoanuts form an important item of commerce, and are now "dessicated" or dried in very large quantities in New York and other places. The Palm Oil imported from the west coast of Africa is obtained by bruising the fruits of *Elæis Guineensis* and *E. melanococca*. The Betel Nut is the produce of *Areca catechu*, and from it an extract is prepared of an astringent nature resembling Catechu. Fine Sago is said to be procured from *Sagus lævis* and *S. Rumphii*, found in the eastern islands of the Indian Ocean. Sago, sugar, and a kind of Palm wine are procured from *Caryota urens*. The date sugar of Bengal is the produce of *Phœnix sylvestris*. *Ceroxylon* or *Iriartea andicola* yields wax, which forms a coating over its trunk. *Copercinia cerifera* is another wax-producing Palm. *Calamus Rotang* is used as cane under the name of Rattan, and has a variety of uses in the mechanic arts. *Calamus rudentum*, the Cable Cane, a native of the East Indies, Cochin-China, and the Moluccas, grows sometimes to the length of five hundred feet. The fruit of *Attalea funifera* is known by the name of Coquilla Nut, and its hard pericarp is used for ornamenting umbrella handles, etc. The spathe of *Manicaria saccifera* comes off in the form of a conical cap, and is used as a covering for the head in the West Indies. *Chamærops humilis* is the only European species of Palm. *Hyphæne Thebaica*, the Doom Palm of Egypt, has a trunk which divides in a dichotomous manner; its pericarp is used as food, and has the taste of gingerbread. In the parched districts between the rivers Dande and Zenza, in tropical Africa, Welwitsch came upon a Palm forest five leagues in length, which consisted exclusively of the crowded stems of a branched Palm belonging probably to *Hyphæne*. Like most African Palms, it yields an excellent wine. *Raphia* has given the gardener his best tying material. Other examples might be added of the usefulness of this noble family of plants; but the above condensed view will probably suffice to give the reader some proper conception of the utility of a class of plants that are now largely used for ornamental and decorative purposes. Bentham and Hooker, in "Genera Plantarum," recognize one hundred and thirty-two genera, and there are from eleven to twelve hundred species recorded, though a considerable number of these are not well known.

Palma Christi. *Ricinus communis.*

Palmate. Having five lobes, the mid-ribs of which meet in a common point, so that the whole bears some resemblance to the human hand.

Palmatifid. Cut half-way to the base in a Palmate manner.

Palmetto. See *Sabal Palmetto* and *Chamærops Palmetto.*

Palmetto. Saw. *Seranoa serrulata.*

Pa'lmia. Named after *L. H. Palm*, author of a work on "The Climbing of Plants," Stuttgart, 1827. Nat. Ord. *Convolvulaceæ.*

P. bicolor, the only species, is a beautiful pubescent, twining plant, a native of tropical Asia and Africa. The flowers are white or pale yellow, with a dark purple centre. Propagated by seeds in spring. Syn. *Convolvulus bicolor.*

Palm Oil. See *Elæis.*

Palm-veined. Having the main vein radiating from a common point.

Palmyra Palm. See *Borassus.*

Paludosus. See *Palustris.*

Palumbi'na. Named from *palumba*, a dove. Nat Ord. *Orchidaceæ.*

P. candida, the only species, is a beautiful little epiphytal Orchid from Mexico. It was formerly known as *Oncidium candidum.* The flowers, which are produced on delicate stems, are waxy white, with yellow centre. This plant succeeds well grown in a greenhouse, and is increased by division.

Palustris. Growing in marshy places.

Pampas Grass. See *Gynerium.*

Pampas Rice. See *Sorghum cernuum.*

Panama Hat Palm. See *Carludovica.*

Pa'nax. Ginseng. From *pan*, all, and *akos*, remedy; referring to the stimulant drug Ginseng, to which miraculous virtue is ascribed by the Chinese. Nat. Ord. *Araliaceæ.*

A genus of glabrous, rarely tomentose trees or shrubs widely dispersed over Asia, tropical Africa, the Pacific Islands, Australia, and America. Many of the species, such as *P. ornatum*, *P. dissectum*, *P. Victoriæ*, *P. plumatum*, etc., are cultivated as ornamental greenhouse plants; *P. lepidum*, a late introduction from Brazil, is a very distinct and ornamental plant of dense, compact habit, and deeply incised, spinosely-toothed leaves. They are all of free growth and may be propagated by cuttings of the roots. They are often found in cultivation under the name of *Aralia.*

The root of the *P. Schinseng* or *Ginseng*, is highly esteemed by Chinese physicians, who affirm that it is able to ward off or remove fatigue, to restore exhausted animal powers, to make old people young; in a word, to make man immortal, *if anything on earth can do so.* At Pekin it is said sometimes to have been

worth its weight in gold. The genuine Manchurian Ginseng consists of a stem from which the leaves spring, of a centre root, and of two roots branching off at the same point from each side of the centre root; the stem somewhat resembles the head and neck; the side roots the shoulders and arms of a man; the main root represents the body, and a fork which the main root frequently forms, supplies the legs. The Chinese, with a not ungraceful feeling, believe that a plant which thus expands into the human form, amid thicket and jungles on which the foot of man never trod, must be intended to alleviate the sufferings of the human race. It is now so scarce that the collection of the wild root is prohibited by imperial edict. The roots of *P. quinquefolium*, a native species found in most of the United States, is collected and exported to China in large quantities, though it is not so highly valued as the indigenous plant. It is now being largely gathered by Chinamen in some of our western States, who sell it in large quantities to wholesale druggists for shipment to China, which we believe is the only market for it. It is always sold by weight, and is collected mostly by Americanized Chinese, who, to make it weigh well, often carefully drill holes in the largest roots into which they run melted lead, and cover it in so ingeniously that it can only be discovered by handling and weighing each root individually; so in this case, as well as in card playing: "For ways that are dark, and tricks that are vain, the heathen Chinee is peculiar."

Pancra'tium. From *pan*, all, and *kratys*, potent; supposed medicinal qualities. Nat. Ord. *Amaryllidaceæ.*

An extensive genus of half-hardy and greenhouse, lily-like, bulbous plants, with long strap-like leaves, mostly deciduous, a few only being persistent. The flowers are white or greenish-white, produced in an umbel on a solid scape about two feet high. The species are found in the south of Europe, north Africa, Syria, Arabia, and in several of the more southern of the United States. *P. maritimum* is the Sea Daffodil, common in the sands on the coast of the Mediterranean. Its flowers are pure white and delightfully fragrant. *P. Carolinianum* is common in salt marshes from South Carolina to Florida. Chapman, in his "Southern Flora," makes no distinction in the two species. There are several other species noticed in his Flora, but these are the best representatives of the genus. *P. ovatum* is a most showy species, bearing an umbel of fifteen to twenty-five pure white, sweet-scented flowers. It is an exceedingly attractive plant and can be had in bloom twice a year. *P. calathinum*, a native of Brazil, with pure white fragrant flowers, placed under Hymenocallis by some botanists, is often found in cultivation as *Ismene Knightii* (see *Ismene*). They all require green-house treatment, and should be grown in light loam and leaf-mould, and allowed a season of rest. They are propagated by offsets.

Pandana'ceæ. A natural order of curious trees or bushes, sometimes with adventitious roots, long imbricated, amplexicaul leaves, usually with spiny margins and backs, and unisexual or polygamous flowers, covering the whole spadix. They are mostly natives of the Malayan Archipelago, and Seychelles, a few being found in Asia, Africa, tropical Australia, and the West Indies. The species, numbering about eighty, have no great economic value, and are classed under two genera, *Freycinetia* and *Pandanus.*

Pandanophy'llum. Derivation of name obscure. Nat. Ord. *Cyperaceæ.*

P. humile, the only described species, is a very ornamental plant, having, as its name would imply, very much the appearance of the *Pandanus.* It is a native of Java, and has glossy, deep green, arching leaves, which are furnished with two secondary ribs, giving the surface of the foliage a peculiar channeled appearance. The end of the leaf, which is from six to nine feet long, and about two inches broad, is suddenly narrowed down into a long thread-like termination. This is the only species under cultivation, though five or six others have been found.

Pandanus. Screw Pine. From *pandang*, a word in the Malay language, signifying conspicuous. Nat. Ord. *Pandanaceæ.*

An extensive genus of exceedingly ornamental, dwarf-growing trees, common in the East Indian Islands. The leaves are imbricated, and embrace the stem, bearing some resemblance to those of the Pine-apple. They are from three to five feet long, and are placed in three spiral rows round the extremities of the branches. The most remarkable peculiarity of the Screw Pine is its singular method of propping itself in the soil, by means of aërial or adventitious roots, which are projected from the sides of the trunk at an angle suited for its mechanical support. This is a beautiful provision for the exigencies of the plant, which acquires an enormous top weight by the accumulation of its thick, fleshy leaves, and would lose its balance but for its power of throwing down new roots when they are required. The flowers of *P. odoratissimus* yield a most delightful fragrance, for which it is largely cultivated in Japan. *P. utilis*, which best deserves the name of Screw Pine, is the species most frequently met in our green-houses, and is, perhaps, the most valuable of any plant used in decoration, as it withstands gas, dust, and ill usage generally better than almost any known plant. It is the most useful in its native country, the Mauritius, where it is not only common, but is cultivated for the sake of its leaves, which are extensively used in the manufacture of the bags or sacks in which sugar is exported. They are increased by seed, or may be propagated by cuttings, the former being the method by which a stock is usually obtained in this country. There has lately been introduced into the green-house two very ornamental kinds, *P. Javanicus variegata* and *P. Veitchii*, both with foliage striped green and white. As decorative plants they are exceedingly valuable, both for the green-house and parlor. They are increased by offshoots or suckers, which root rather slowly. The temperature in which they are propagated should not be less than 75°.

Pandurate or **Panduriform.** The same as *Fiddle-shaped.*

Panic-Grass. See *Panicum.*

PANDANUS UTILIS.

PAPAVER UMBROSUM.

PANSIES (TYPES OF).

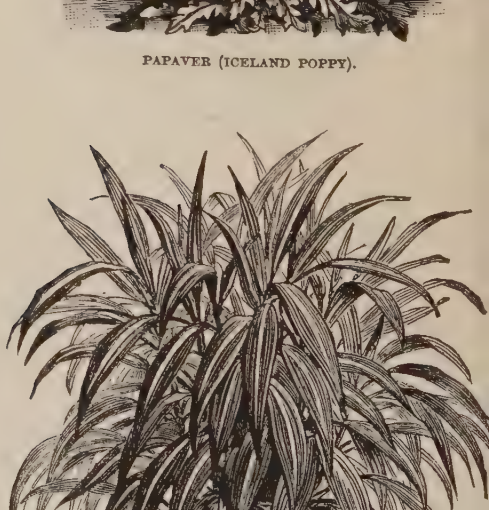
PAPAVER BRACTEATUM.

PANICUM GERMANICUM (MILLET).

PAPAVER (JAPANESE POMPONE POPPY).

PAPAVER (ICELAND POPPY).

PAPAVER (TYPE OF LARGE FLOWERED POPPY).



PANICUM PLICATUM VARIEGATUM.

PAN

Panicle. A compound raceme.

Pa'nicum. Panic Grass. From *panicula*, a panicle; form of flowering. Nat. Ord. *Gramineæ*.

An extensive genus of grasses, mostly used as fodder plants. *P. Germanicum* is the well-known Hungarian Grass. *P. plicatum niveo-vittatum* is a beautiful species for green-house culture, suitable for baskets and vases. It is propagated freely by division, and will grow in almost any position given it. The elegant drooping variegated grass, known in cultivation as *P. variegatum*, is, according to modern botanists, now named *Oplismenus Burmanni variegatus*, which see. The common Crab Grass, *P. sanguinale*, an annual species introduced from Europe and now thoroughly naturalized, though spoken of as a good pasture grass in Tennessee and Mississippi, etc., is a great pest when it gets foot-hold on a lawn or grass plot, as it bends before the mowing machine, and, of course, when allowed to seed, spreads more and more every year. Probably the best plan to get rid of it is to loosen it up with a sharp rake before it ripens its seed, and use the scythe for a few times, cutting both ways so as to cut all the seeding stems, and in fall giving each spot a good scarifying with a rake, sowing it over with lawn grass seed mixed with white clover, and finishing with a liberal dressing of a good lawn enricher. A year or two of this treatment will eradicate the pest.

Pa'nsy. *Viola tricolor.* The almost innumerable varieties of Pansies, embracing every color, from white to black, maroon, yellow, purple, blue, self-colored, and those with the most delicate markings, as well as the bold and showy faces of others, are all hybrids between the annual species, *V. tricolor*, a weed in English fields and gardens, and the perennial kinds, *V. Altaica*, from Tartary, *V. grandiflora*, a native of Switzerland, *V. lutea*, of Great Britain, *V. Rothomagensis*, of France, and *V. pedata* var. *bicolor*, of this country. The first attention paid to the cultivation of the Pansy, and that which resulted in making it a florist's flower, was given by Mary Bennet, who had a little flower-garden in the grounds of her father, the Earl of Tankerville, at Walton-upon-Thames, England. She had prepared a little bed, in which were placed all the varieties of Pansies which she accidentally discovered in her father's garden. Aided by the industry and zeal of the gardener, Mr. Richardson, several new varieties were raised from seed and transplanted to this little bed. From this small beginning in 1810 may be traced the rage which has since prevailed in the cultivation of this popular flower. The English, French, and German horticultural societies offered great inducements to the florist, in the way of premiums, for the best flowers, and as the race was free to all, the interest awakened was of a most lively character, one which every gardener of importance helped to keep alive. The result has been, the Pansy of to-day in contrast with the little *V. pedata* and *V. tricolor*, the parents, so common in our woods and roadsides. Our seedsmen and florists have been so much absorbed in watching the race for supremacy in the production of seed of this flower, that that they did not stop to consider whether

PAP

we could compete, and were only anxious to know which country had merited the honor, in order to send to her for our supply. Our success in other things encouraged us to try this, and the first trial was sufficient to assure us what we have since proven, viz., that the very best Pansies grown in this country were from seed of our own growing. Pansies require to be grown in a rich, moist loam, and protected as far as possible, from the midday sun, and from winds, and during the warmer summer weather should not be allowed to get dry. In England special varieties of Pansies are grown from cuttings for many years by name. In the climate of the United States this plan is hardly practicable, even if desirable, as the ravages of the Red Spider during the summer months on this plant virtually destroy it, and cause it always to be treated as a plant never to be carried over the second season after flowering. For this reason it is here raised only from seed. This is usually first sown in August, which gives plants large enough to be pricked away in cold frames during winter. Such plants give a profuse and continuous bloom from March to June, or, if sown earlier than August—say July 1st—they will bloom from October throughout the entire winter and spring months, if grown in a temperature averaging 45° at night. For succession, for late spring and summer flowering, we find the best date to sow is the first week in January, and if carefully handled, by growing in a low temperature (average not to exceed 50° at night), they will begin to flower in April, and will continue to flower longer than those sown in August, which get exhausted by June, while the January crop flowers right through the hottest summer months. A number of years ago a fine collection of Double Pansies originated with us, but we failed to perpetuate them successfully by cuttings, and they were ultimately lost; but they had no merit except novelty, as they were far inferior in beauty to the single kinds.

Papaver. From *papa*, pap, or thick milk; the juice of the poppy was formerly used in children's food to make them sleep. Nat. Ord. *Papaveraceæ*.

An extensive genus of hardy, or half-hardy annual or perennial herbs, with a milky juice, widely distributed through Europe, Asia and Africa; one species is found in Australia. The flowers are red, violet, white or yellow, and are very showy and transient, many dropping the day they expand. Many exceedingly showy annual varieties are now in cultivation, and come true from seed, which only requires to be sown where desired, as early in the season as practicable. *P. orientale*, one of the showiest of hardy perennials introduced from Armenia in 1714, has large thistle-like leaves about a foot long, clothed with white bristly hairs. Its deep scarlet flowers, more than six inches in diameter, have a dark purple spot at the base of each petal. Its variety, *P. O. bracteatum*, is much superior in size and attractiveness. This variety forms huge masses of handsome foliage, the flowers are carried on stiff stalks, with leafy bracts at intervals, and one well-developed bract under each flower, which is six to nine inches

across, and brilliant scarlet. There are several other varieties all highly ornamental plants. *P. nudicaule*, the Iceland Poppy, a native of Siberia and the northern parts of America, has large, rich, yellow flowers on naked stems, and is a handsome plant for borders or rock-work. *P. umbrosum* is a strikingly brilliant hardy annual from the Caucasus, and therefore perfectly hardy. The color of the flower is a dazzling scarlet with a jet-black blotch on the inner base of each petal, which is sometimes margined with ashy-gray. The varieties known as the Carnation, Picotee, and Ranunculus Poppies are double varieties of *Papaver Rhœas*, the common Corn Poppy, and possess almost every shade of color except blue and yellow. They are also known as French and German Poppies, and are exceedingly showy. *P. somniferum* is a beautiful and most variable Poppy. It generally grows about two feet in height and varies in color from white to deep crimson. By selection a type called the Pæony-flowered, with very double broad-petaled flowers of many colors, from pure white to deep crimson, variegated, etc., has been obtained, and is one of the most showy annuals for summer decoration. The original species, *P. somniferum*, is the plant especially cultivated in India, Persia, Asia Minor, Egypt, etc., for the production of Opium, which is the inspissated milky juice obtained by making incisions in the capsule. The seeds are destitute of any narcotic quality and may be eaten. White Oil or Oleum is manufactured from them in France, and they are sold as birds' food, under the name of Maw.

Papavera'ceæ. A natural order consisting of herbs or shrubs, usually with milky or colored juice, having alternate, exstipulate leaves, and long, one-flowered peduncles. The species are chiefly European, but they are found pretty generally distributed over the world. The order possesses well-marked narcotic properties. Opium is the concrete milky juice procured from the unripe capsules of *Papaver somniferum* and its varieties. There are about twenty genera, as, *Papaver*, *Eschscholtzia*, *Argemone*, *Fumaria*, and nearly one hundred and fifty species.

Papaw Tree. See *Asimina.*

Paper Mulberry. See *Broussonetia papyrifera.*

Paper Narcissus. (See *Narcissus Tazetta* var. *papyraceus.*) This, like the Roman Hyacinth, Lily of the Valley and other bulbs, is largely forced for cut flowers in all the principal cities of the United States. The manner of doing this is exactly like that practiced with the Roman Hyacinth, which see, under *Hyacinth.*

Paper Plants. Few persons imagine how many different plants have of late years been utilized in the manufacture of paper. Rags of course still furnish the bulk of our paper, but large quantities are also made of wood, straw, and Esparto-Grass *Stipa* (*Macrocloa*) *tenacissima*, and *Lygeum Spartium*, and in various parts of the world successful experiments have been made with a multitude of materials that have not yet been brought into general use. In France paper has been manufactured out of leaves which are cut, pressed into blocks, and then steeped in lime-water to reduce them to pulp. In Ireland the Mallow, the Hop-vine, the Yellow Iris, and even the Red Clover have furnished paper pulp, and in Scotland the stems of the Hollyhock, Bracken, Flags and Rushes of several kinds, and even Peat have been utilized. Sea-weed and Tan have also been used in Europe and the East, Ramie Pine-apple fibre, Bamboo stalks, and the refuse of Sugar-cane.

Paper Reed. See *Papyrus.*

Paper Tree. *Trophis aspera.*

Paphi'nia. From *Paphia*, a surname of Venus. Nat. Ord. *Orchidaceæ.*

The only species known, *P. cristata*, was formerly included in the genus Maxillaria, but on a revision of that genus was separated by Dr. Lindley, as above. It is a splendid plant, bearing richly-colored flowers, and is rather difficult to cultivate. The best manner of managing it is to pot it in a mixture, turfy peat and sphagnum moss, elevating it considerably above the rim of the pot, allowing it to stand in the warmest part of the hot-house, and being careful to avoid over-watering at any time. It delights in a high, moist temperature while growing, but should be kept nearly dry when at rest. The young shoots which spring from the base of the pseudo-bulbs are very impatient of stagnant moisture, and should therefore be kept clear of the surrounding surface. It is now included by some botanists under *Lycaste.*

Papiliona'ceæ. A sub-order of *Leguminosæ*, spread over the whole world, but principally inhabiting the north temperate Hemisphere. There are some two hundred and ninety-five genera, and about forty-seven hundred species.

Papilionaceous. Having such a corolla as that of the Pea; butterfly-shaped flowers.

Pappoose Root. The popular name of *Caulophyllum.*

Pappus. Thistle-down. The down crowning the achenium of the Thistle, and other Compositæ represents the calyx, so the scales, teeth, chaff, as well as bristles, or whatever takes the place of the calyx in this family, are called pappus.

Papyraceous. Of a texture or the consistency of writing paper.

Papy'rus. From the Syrian *babeer*, pronounced *papeer*, whence the Egyptian word *papyrus*, paper. Nat Ord. *Cyperaceæ.*

A small species of aquatic plants, mostly inhabitants of tropical countries. *P. antiquorum*, the Egyptian Paper Reed, is the plant which yielded the substance used as paper by the ancient Egyptians. The underground root-stalks spread horizontally under the mud where the plant grows, continuing to throw up stems as they creep along. These stems are from eight to ten feet high, a portion of them being above the water. The largest portion of the stalk was chosen and was split down one side; the soft centre was removed, and the sheath, about eight inches in breadth, was pressed, polished, and rubbed with oil of Cedar to preserve it from decay. Two sheets were then gummed, one upon the other, in such a way that the fibres of one run at right angles to those of the second, in order that sufficient consistency might be

obtained; and then these doubled sheets were attached to one another to form rolls of any desired length. Papyrus was so generally used even in the later Roman period that Cassiodorus, says a recent writer in the *Revue Horticole*, wrote an epistle congratulating the whole human race upon the fact that the import duty laid upon it by Theodoric had been decreased. In the time of Xerxes an immense number of Papyrus cables were manufactured in Egypt for use in his fleets and in his bridge-building enterprises. The stems were likewise used for ornamenting the Egyptian temples and crowning the statues of their gods. It is usually cultivated as an aquatic, and may be grown in a pot of rich loam, if kept standing in a pan or tub of water. It forms a very prominent and interesting plant in an aquarium or a warm sheltered corner of the sub-tropical garden. It is easily propagated by division of the creeping rhizomes. The stems of *P. corymbosus*, form the Indian matting, of which large quantities are imported. This genus of sedges has been replaced under *Cyperus*, by Bentham and Hooker.

Paraca'ryum. From *para*, beside, and *karyon*, a nut; in reference to the position of the nutlets. Nat. Ord. *Boraginaceæ*.

A genus of hardy biennial or perennial herbs, natives of southern Europe and central Asia. Several species of *Cynoglossum* and *Omphalodes* are now included under this genus.

Paradisa Liliastrum. This is given as the correct name of *Anthericum Liliastrum*.

Paradise. Grains of. A common name applied to the seeds of *Amomum Melegueta*.

Paradise Nut. The fruits of *Bertholletia excelsa*.

Paraguay Tea. See *Ilex Paraguariensis*.

Para Nuts or **Brazil Nuts**, are the fruits of *Bertholletia excelsa*.

Parasite. A plant which obtains its nourishment directly from the juices of some other plant to which it is attached.

Parasol. Chinese. *Sterculia platanifolia*.

Parchment Bark. *Pittosporum crassifolium*.

Parda'nthus. Blackberry Lily. From *pardos*, a leopard, and *anthos*, a flower; referring to the spotted flowers. Nat. Ord. *Iridaceæ*.

P. Chinensis, the only species, is a handsome, hardy herbaceous plant, with orange-colored flowers, spotted with purple. It has branching flower stems, and continues to produce its lily-like flowers for several weeks. The seed-pods have the appearance of a Blackberry, whence the common name. The seeds will not drop for a long time after the branches have been cut, and, when dried, are useful to mix with grasses, in arranging dried bouquets. It was introduced originally from China and Japan, about 1825, but is now found naturalized on East Rock, New Haven, on Long Island, and many places southward. It is easily propagated by seeds or division of the roots in spring.

Parenchyma. The soft cellular tissue of plants, like the green pulp of leaves.

Pariera Brava. A name given to *Cissampelos Pariera*.

Pariera Brava. White. A common name in Cayenne for *Abuta rufescens*.

Parietal. Growing to the walls or interior surfaces of any ovary.

Parina'rium. From *Parinari*, the native name of the plant in Brazil. Nat. Ord. *Rosaceæ*.

A genus of shrubs or trees, natives of Australia, the Pacific Islands, tropical Africa, Brazil, and Guiana. But few of the species are in cultivation. *P. excelsum*, the Guinea Plum, and *P. macrophyllum*, the Gingerbread Plum, are noble plants bearing large terminal bunches of flowers, but, owing to their size, they are seldom found in cultivation except in botanic gardens.

Pari-pinnate. Equally or abruptly-pinnate.

Paris. From *par*, equal; alluding to the regularity of the parts. Nat. Ord. *Liliaceæ*.

Herbaceous perennials with creeping rhizomes, natives of Europe and temperate and mountainous Asia. *P. quadrifolia* (Herb-Paris) sends up a simple stem a foot high, bearing at its summit four whorled, large oval, acute leaves, and a single terminal large green flower. The leaves and stem were formerly used in medicine, and the juice of the berry is considered poisonous.

Paris Daisy. *Chrysanthemum frutescens*.

Pari'tium. From *pariti*, the Malabar name of one of the species. Nat. Ord. *Malvaceæ*.

P. elatum, the only species of this genus, is an evergreen tree found only in Cuba and Jamaica, where it is called Mountain Mahoe. It affords the beautiful lace-like inner bark called Cuba Bast, formerly only used for tying around bundles of Havana cigars, and once extensively used by nurserymen and gardeners for tying up trees and plants, more particularly in budding. It is not so valuable, however, for this purpose as the more recently introduced tying material known as *Raffia*. This genus is now placed under *Hibiscus*, which see.

Pa'rkia. Named in honor of *Mungo Park*, the celebrated African traveler. A small but widely spread genus of *Leguminosæ*, found in Africa, India, Java, Surinam, and Brazil. *P. Africana*, the African Locust tree—Netta, or Nutta, of the negroes—is a large tree, bearing bi-globular heads of scarlet flowers at the end of long stalks, followed by clusters of flat, leathery pods, containing a number of seeds enveloped in a farinaceous pulp, from which an agreeable beverage is made.

Parkinso'nia. Named in honor of *John Parkinson*, author of "Theatrum Botanicum," published in 1629. Nat. Ord. *Leguminosæ*.

An ornamental spiny shrub, common to Lower California and Mexico. It is grown in the West Indies for a hedge plant, and called Jerusalem thorn.

Parlor Gardening. In parlor gardening, or the keeping of plants in private rooms, one of the most essential things, for satisfaction to the owner, is to start with young, healthy plants, rather than old matured specimens. One of the most common errors in keeping plants in rooms is that of keeping the temperature too high. Very few plants suitable for the parlor grow well in a temperature of less than 50 degrees at night. To be sure, there are quite a number of plants grown in private rooms, that require a much higher temperature; but to have satisfactory results, the two divisions should be kept in separate

rooms at the different temperatures, say 50 degrees at night for the so-called green-house plants, and 65 degrees at night for the tropical or hot-house. A few of the best green-house plants suited for parlor culture, the average temperature at night being 50 degrees are as follows: Azaleas, Abutilons, Ageratums, Callas, Cinerarias, Carnations, Cyclamen, Camellias, Echeverias, Ferns (green-house and Climbing), Feverfews, Fuchsias, Geraniums (Pelargoniums), Hoyas (Wax Flower), Holland bulbs of all kinds, Ivies (Parlor and Hardy), Lobelias, Passifloras, Roses, etc. A limited list of the best suited tropical or hot-house plants for parlor culture, the temperature at night to average 65 degrees is as follows: Allmandas, Begonias, Bouvardias, Caladiums, Cissus, Crotons, Coleus, Dracænas, Ferns (tropical), Heliotropes, Hibiscus, Poinsettia, Torenias, Tropæolums, Palms, etc. The instructions for propagating, watering, potting, killing of insects, soil, mulching, and all other operations given for culture of plants, will be found under these different heads, and will be found equally applicable to the culture of plants in rooms as in green-house or hot-house culture. Saucers in which to place the pots are sometimes a necessity in rooms to save the floors from getting wet; but care must be taken not to allow the water to stand for any length of time in the saucers. Plants in rooms during the winter months, when grown in a temperature of 50 degrees, will not usually require water more than twice a week, and in the temperature of 65 degrees perhaps thrice a week; but in no case water unless the lightness of the color of the soil on the top gives indications that the plant is dry, and then water sufficiently to go through the pots; those that seem less dry, water more sparingly, and those that are wet, give none whatever until they become dry, no matter how long the time may be. As plants grown in rooms have only one side to the light, it will conduce to the health and symmetry of the plant to turn it around at least once a week, so that each side will have a like proportion of light.

Parmentie'ra. Named after *A. Parmentier*, a French writer on edible plants. Nat. Ord. *Bignoniaceæ*.

P. cereifera, the only introduced species, has large white flowers, followed by waxy-yellow fruits two to three feet long, hanging down, and much resembling candles, hence the common name "Candle Tree." Introduced from Panama in 1866.

Parna'ssia. Grass of Parnassus. Named after Mount Parnassus, where they were fabulously said to have first sprung. Nat. Ord. *Saxifragaceæ*.

A genus of swampy, herbaceous perennials. Several of the species are common throughout the United States in marshy places. *P. Caroliniana*, Grass of Parnassus, flowering from July till September, one of the most beautiful of the species, bears from the root several bright green, smooth, roundish leaves, heart-shaped at the base, among which rises to the height of about a foot a simple angular stem, terminating with a simple large flower of a creamy white color delicately veined with green. *P. fimbriata*, found from Colorado to California, and

northward to British America is even more attractive, as it has larger flowers, with peculiar fringe-like appendages to the petals. It has kidney-shaped root leaves, resembling those of *P. asarifolia*, another native species which bears similar white flowers, but without the singular fringes to the petals. *P. palustris*, common on the shores of Lake Superior and northward, is not so showy as the former, but is very beautiful, and is the only European species.

Paro'chetus. From *para*, near, and *ochetos*, a brook; its habitat. Nat. Ord. *Leguminosæ*.

A small genus of prostrate herbaceous plants widely distributed over the mountainous regions of tropical Asia, and in some portions of Africa. *P. communis* the Shamrock Pea, the only cultivated species, is a trailing clover-like plant, with bright-green, slightly blotched leaves, growing freely during summer, and producing its solitary bright-blue flowers of amethyst tint, in autumn, admirably adapted to trail down the face of a rockery. Although it is considered a hardy perennial, yet it will occasionally get winter-killed; therefore, for the purpose for which it is adapted, a few plants should always be held in reserve to fill any vacancy there may be in spring.

Parony'chia. Nail-wort. A genus of the Nat. Ord. *Illecebraceæ*, containing about forty species of but little interest except *P. serpyllifolia* which makes a pretty covering for beds, or amongst taller growing plants, and is much used in carpet bedding.

Parro'tia. Iron-tree. Named after *F. Parrot*, a German naturalist and traveler. Nat. Ord. *Hamamelidaceæ*.

A small genus of hardy trees or shrubs, natives of northern Persia and the Caucasus. *P. Persica*, the only species yet in cultivation, is a very ornamental tree for the lawn; its yellowish flowers are not particularly showy, but its ovate-oblong deep green leaves are very striking when they assume their autumnal tints of orange and scarlet. It is closely allied to the Liquidambar, and is increased by seeds or by layers. Introduced from Persia in 1848.

Parrot's Bill. A popular name of *Clianthus puniceus*.

Pa'rrya. Named in honor of *Capt. W. E. Parry*, the Arctic navigator. Nat. Ord. *Cruciferæ*.

A genus of hardy, dwarf pilose plants, all Arctic, or natives of the highest mountains of northern Asia. *P. nudicaulis*, with lilac flowers, *P. integerrima*, bright purple, and *P. Artica*, pale purple, are all beautiful plants for the rock-garden or rock-work. *P. Arabidiflorum* is a synonym of *Neuroloma* or *Arabis Arabidiflora*.

Parsley. *Apium* (*Carum*) *Petroselinum*. This well-known seasoning herb is a hardy biennial, a native of Sardinia, whence it was introduced into England in 1548. Its uses for culinary purposes, such as sauces, soups, and in garnishing various dishes, has become very general, and several varieties of it are offered by seedsmen. Among the ancient Greeks and Romans, Parsley always formed a part of their festive garlands, on account of retaining its color so long; and Pliny states that, in his time, there was not a salad

or sauce presented at the table without it. The ancients supposed it absorbed the inebriating fumes of wine, and by that means prevented intoxication. Of the several varieties, the double curled-leaved is preferred for use, as being more ornamental than the common sort, of which it is nothing more than a variety, obtained and continued by careful selection. We have ourselves gathered, for botanical specimens, plants of Parsley from the ruined walls of Craigmiller and Crichton Castles, near Edinburgh, evidently the original species, as the leaves were perfectly plain, having no trace of the curl that makes it now so attractive for garnishing, showing that the warrior lords of these ancient battlements had not troubled themselves to make any advance in the ornamental qualities of this vegetable. Parsley is now grown in immense quantities for spring and winter use, usually in cold frames, where it is sown in February or March, at the time the Lettuce is planted. It is sown between the rows of Lettuce, which is planted six inches apart. As the seed is slow to germinate, and grows slowly at that season of the year, the Lettuce crop is cut off before the Parsley gets large enough to be injured. It develops so as to cover the ground usually about June 1st, and is then cut off and marketed. It soon starts to grow, but is usually of little value until the late fall months. To get a late fall crop, it is cut off and thrown away by about September 15th, which gives a full and heavy crop of leaves by November. It is then covered with sashes, which are raised up for ventilation in mild weather; and thus retarded, a full crop is easily obtained for the holidays, when it is in its greatest demand. Another plan is to sow Parsley in shallow boxes, say four inches deep, made of such width and length as will fit in under the front bench of the greenhouse stage; far enough under to get a fair proportion of light, say from fifteen to twenty inches. In this position it will grow finely, and, with a liberal use of liquid manure, can be cut four or five times during the winter in any green-house averaging 65°. For this purpose the seed can be sown in the boxes as late as August.

Hamburg or Turnip-rooted Parsley is a variety grown only for the use of its fleshy roots, which are cooked and eaten like Parsnips. The roots may be stored in winter until required for use.

Neapolitan or Celery-leaved Parsley is sometimes grown for the use of the leaf-stalks, which are blanched, and eaten like those of Celery.

Parsley Fern. See *Allosorus.*

Parsnip. *Peucedanum sativum* (syn. *Pastinaca*). The common garden Parsnip is a hardy biennial, a native of Great Britain and the south of Europe. It has also become naturalized to a considerable extent in the United States. The leaves of the wild kind are hairy and dark green; in the cultivated Parsnip, smooth, and of a light, yellowish green. The Parsnip has long been cultivated as an esculent root. According to Pliny, they were held in such repute by the Emperor Tiberius that he had them annually brought to Rome from the banks of the Rhine, where they were then successfully cultivated. A deep, rich, loamy

soil, free from stones, is requisite for the favorable growth of the Parsnip; but when grown upon poor land, it loses much of the rank flavor which it acquires if cultivated in rich soils, and though not nearly so abundant, is far more sweet and agreeable. Parsnip seed is almost useless at two years old, and fresh seed is even slow of germination, and is one of the seeds which should always be trodden in with the feet or firmly rolled after sowing. Sow in drills three inches deep and twelve inches apart. In England the roots are used to make a domestic wine.

Parso'nsia. In memory of *James Parsons, M.D.*, a Scotch botanist. Nat. Ord. *Apocynaceæ.*

A genus of twining shrubs, natives of Australia, New Zealand, and tropical Asia. *P. albiflora* bears its fragrant white flowers in many-flowered panicles. But few of the species are in cultivation.

Parterre. A French term used to denote a small enclosure or flower-garden, laid out in different sizes and shapes.

Partial. Secondary; partial petiole, a division of a main leaf-stalk, or the stalk of a leaflet; partial peduncle, a branch of a peduncle, etc.

Partite. Divided into a number of segments, which extend almost as far as the base of the part to which they belong, as Tripartite, three-parted; Quadripartite, four-parted, etc.

Partridge Berry. See *Gaultheria* and *Mitchella.*

Partridge Pea. See *Cassia chamæcrista.*

Partridge Wood. The wood of certain South American and West Indian trees, one of which is *Andira inermis.*

Paspalum. From *paspalos*, one of the Greek names for Millet. Nat. Ord. *Graminaceæ.*

P. dilitatum (syn. *P. ovatum*) and *P. platycaule*, sometimes called Louisiana Grass, natives of Virginia and southward, are mentioned in Dr. George Vasey's report to the Department of Agriculture, 1887, as valuable forage grasses for the South, especially *P. dilatatum*, "which has very strong roots, and grows in the longest drought almost as fast as when it rains."

Pasque Flower. See *Anemone pulsatilla.*

Passeri'na. From *passer*, a sparrow, in allusion to the beaked seeds. Nat. Ord. *Thymelaceæ.*

A genus of heath-like shrubs, natives for the most part of the Cape of Good Hope. Several species are in cultivation. *P. tinctoria* is employed in dying wood yellow. Cuttings of the young wood root freely in sand.

Passiflo'ra. Passion Flower. From *passio*, suffering, and *flos*, a flower; referring to the filaments, or rays, and other parts, being likened to the circumstances of Christ's crucifixion. Nat. Ord. *Passifloraceæ.*

An extensive genus of hardy, half-hardy, and green-house climbers, mostly natives of tropical America, a few only being indigenous to Asia. The name was applied from the resemblance afforded by the parts of the plant to the instruments of our Lord's Passion and its attendant circumstances: thus the three nails—two for the hands and one for the feet—are represented by the stigmas; the five anthers indicate the five wounds; the rays of glory, or, as some say, the crown of thorns, are represented by the rays of the "corona;"

the ten parts of the perianth represent the Apostles, two of them absent (Peter, who denied, and Judas, who betrayed our Lord); and the wicked hands of His persecutors are seen in the digitate leaves of the plant, and the scourges in the tendrils. Had this genus been named by modern scientists, it is probable their imagination would have taken a somewhat different direction. All the Passion Flowers are handsome, fast-growing and free-flowering plants. They are best adapted for large structures; in small houses close pruning becomes necessary, and the plants consequently cannot develop their true characters. The flowers are very beautiful in some species; in all, they are of singular form and very interesting. The deep red or scarlet *P. racemosa* (syn. *P. princeps*) and its many hybrids, *P. Raddiana* (syn. *P. Kermesina*), and others produce their flowers in long pendulous racemes and are unsurpassed for green-house decoration. *P. quadrangularis*, and its variegated-leaved variety, *P. q. acubifolia*, *P. Decaisneana*, *P. alata*, etc., have very large sweet-scented flowers, the upper side of the calyx and petals deep crimson, and the rays variegated with purple, white, and crimson. *P. cærulea* and its white sweet-scented variety, *Constance Elliott*, as well as the beautiful hybrid, forms *P. c. Colvillei*, *P. c. racemosa*, etc., are favorite sorts for covering arbors, trellises, etc., and are often used as drooping plants in large vases or hanging baskets. They are nearly hardy with us and with *P. incarnata* (the Maypops of the Southern States) are entirely so south of Washington. Beautifully golden-variegated varieties of the white, *P. C. Constance Elliott* and *P. Pfordtii* have been produced by Mr. John Spalding, of New London, Conn., by grafting them on the golden-spotted *P. q. acubifolia*. They are great acquisitions to our list of variegated climbers, and grow and flower as freely as the types. *P. edulis* is sometimes grown for its edible fruit which is purple when ripe, the pulp orange-colored and of a pleasant sub-acid taste with a flavor something like an orange. Several other species produce edible fruits, which are greatly esteemed in their native countries. All of the species are easily increased by cuttings, except *P. racemosa*, and its hybrids, which grow much better when grafted on any of the free-growing sorts.

Passiflora'ceæ. A natural order of herbs or shrubs, often climbing; natives chiefly of warm climates, but most numerous in South America, and the West Indies. Several species are of economic value, some of them having edible fruit. The order comprises nineteen genera, including *Tacsonia*, *Passiflora*, and *Carica*, and upward of two hundred species.

Passion Flower. See *Passiflora*. The name is also applied to the species of *Tacsonia*.

Pastina'ca. Parsnip. From *pastinum*, a dibber; referring to the shape of the root. Nat. Ord. *Umbelliferæ*.

A genus of uninteresting plants with the exception of *P. sativa*, the Parsnip, which see. This genus is now included under *Peucedanum*.

Patchouli Plant. The common name of *Pogostemon Patchouli*, which see.

Patens, Patent. Spreading wide open, as petals from the calyx.

Paterso'nia. Named after *Col. William Paterson*, an excellent botanist. Nat. Ord. *Iridaceæ*.

A small genus of green-house herbaceous perennials from New Holland, with purple, Iris-like flowers, very showy, but of so short duration that the plant is not worth cultivating.

Patience. Patience Dock, or Herb Patience. *Rumex Patientia*. The leaves were formerly much used in France and England, and to some extent in this country as a pot-herb, now almost entirely superseded by *Spinach*.

Patri'nia. Named in honor of *E. L. Patrin*, a French traveler in Siberia. Nat. Ord. *Valerianaceæ*.

A genus of hardy perennial herbs, natives of central and eastern Asia. Their yellow flowers are borne in corymbose-paniculate cymes, well above the foliage. They will succeed in any light, rich soil, and may be increased by seeds. Generally cultivated under the name of *Valeriana*.

Patulous. Moderately spreading.

Pauciflorus. Few-flowered.

Paulli'nia. Named after *Ch. Fr. Paullia*, a Danish botanist. Nat. Ord. *Sapindaceæ*.

An extensive genus of South American evergreen climbers, with divided compound leaves. *P. thalictrifolia*, bears clusters of pale pink flowers, but is cultivated more for its beautiful fern-like foliage, and forms a very beautiful climber for the warm green-house. It was introduced from Rio Janiero in 1871, and is easily increased by cuttings.

The seeds of *P. sorbilis* is the Guarana of Brazil, of which the "Treasury of Botany" says: "The Guarana is extensively used in Brazil, Guatemala, Costa Rica, and other parts of South America, as a nervous stimulant and restorative. The pounded seeds constitute Guarana. It is used both as a remedy for various diseases, and also as a material for making a most refreshing beverage. Not only is the active principle of Guarana identical with Theine, but as far as is known, no other substance yields it so abundantly, the amount being 5.07 per cent., as against good Black Tea, which yields 2.13, and Coffee from .08 to 1.00. The mode of using the Guarana is curious and interesting. It is carried in the pocket of almost every traveler, and with it the palate-bone or scale of a large fish, the rough surfaces of which form a rasp, upon which the Guarana is grated; and a few of the grains of the powder so formed are added to water, and drank as a substitute for Tea. The effect is said to be very agreeable."

Paulo'wnia. Named after the hereditary Princess of the Netherlands, daughter of the Emperor of Russia. Nat. Ord. *Scrophulariaceæ*.

P. imperialis comprises this genus. It is a splendid hardy tree, both for foliage and flowers; in habit and general appearance resembling the Catalpa, though less hardy. The young shoots are liable to be killed by frost in this latitude, but if protected for one winter, they will not require further attention, and its rapid growth afterwards will well repay for that little trouble, with a beautiful flowering shade tree. The flowers, which re-

semble the *Gloxinia* in shape, are blue when first expanded, gradually turning to bluish lilac, about two inches in length, and are produced in terminal panicles or from seeds. The branches become very brittle with age, and are easily broken by strong winds; and this has been a great objection to its use as an ornamental tree for the lawn, for which it is otherwise admirably suited. Introduced from Japan in 1840, and propagated by root cuttings or by seeds.

Pauperitious. Poor; having a starved appearance.

Pave'tta. The name of one of the species in Malabar. Nat. Ord. *Rubiaceæ.*

A small genus of green-house, white-flowered evergreens, allied to the *Ixora*, and requiring the same treatment. *P. borbonica*, a handsome species, is the one chiefly grown in our green-houses.

Pavia. Buck-eye. Named in honor of *Peter Paiv*, a Dutch botanist. Nat. Ord. *Sapindaceæ.*

A division of the genus *Æsculus*, including the dwarf smooth-fruited varieties. See *Æsculus.*

Pavo'nia. Named after *Josef Pavon, M.D.*, a Spanish botanist, and traveler in Peru. Nat. Ord. *Malvaceæ.*

A small genus of low-growing shrubs and herbaceous perennials, natives of South America. They are allied to the Mallow, and have showy scarlet flowers. The beautiful green-house species known as *P. Makoyana*, and *P. Wyoti*, are now placed under Goethea, which see.

Paxto'nia. Named in honor of *Sir Joseph Paxton*, author of several works on botany and gardening. Nat. Ord. *Orchidaceæ.*

A small genus of Orchids now included under Spathoglottis.

Pea. A common name for various members of the Nat. Ord. *Papilionaceæ.*

Pea. Angola. *Cajanus Indicus.*
Black-eyed. A West Indian name for *Dolichos sphærospermus.*
Black-rooted. *Orobus niger.*
Butterfly. The popular name for *Clitoria Mariana.*
Chick. See *Cicer arietinum.* The name was formerly written Cich or Ciche, sometimes Rammes Ciches.
Earth. *Lathyrus amphicarpus.*
Earth-nut. *Lathyrus tuberosus.*
Egyptian. *Cicer arietinum.*
Everlasting. *Lathyrus platyphyllus* (syn. *L. latifolius*).
Field or Gray. *Pisum sativum* var. *arvense.*
Glory. See *Clianthus Dampieri.*
Heart. *Cardiospermum Halicacabum.*
Heath. *Lathyrus macrorhizus.*
Hoary. The genus *Tephrosia.*
Lord Anson's. See *Lathyrus Magellanicus.*
Milk. The genus *Galactea.*
No-eye. *Cajanus indicus flavus*, which see.
Orange. The small immature fruit of the Curaçoa Orange used for flavoring wines.
Partridge. *Heisteria coccinea* and *Cassia Chamæcrista.*
Pigeon. *Ervum Ervilia.*
Pigeon. Of the West Indies. *Cajanus Indicus.*
Poison of Australia. The genus *Swainsonia.*
Rosary. The seeds of *Abrus precatorius.*
Sea-side. *Lathyrus maritimus.*
Sensitive. A common name for *Cassia nictitans.*
Shamrock. *Parochetus communis.*
Sugar. A name given to some varieties of *Pisum sativum*, which have tender edible pods.
Sweet. *Lathyrus odoratus.*
Tangier. *Lathyrus Tingitanus.*
Wood. *Lathyrus sylvestris*, and *Orobus sylvaticus.*

Pea. *Pisum sativum.* The varieties of the common Pea are numerous, and differ widely, some not growing more than one foot high, others growing ten to twelve. The difference in the seed contrasts as strangely, some being small, hard, and nearly tasteless, while others are large, rich, and luscious. The history of the Pea, like many of our most familiar garden vegetables, and even its native country, are involved in obscurity. It is generally supposed to be a native of the south of Europe, and to have been introduced into English gardens at a very early period. It is recorded in English history, that when the English forces were besieging a castle in Lothian, in the year 1299, their supply of provisions was exhausted, and their only resource was in the Peas and Beans of the surrounding fields. This circumstance would warrant the belief that the Pea was one of the staple articles of produce for human food. The more delicate kinds, however, do not appear to have been cultivated until a much later period. Mention is made of Peas being brought from Holland in the time of Queen Elizabeth, that were "fit dainties for ladies, they came so far and cost so dear." In the reign of Henry VIII., too, the Pea appears to have been somewhat of a rarity, as in the privy purse expenses of that king is an entry: "Paied to a man in rewarde for bringing pescodds to the king's grace, iiijs. viiid." The varieties and sub-varieties of this vegetable are almost innumerable, and are being constantly brought forward. That there has been a steady improvement in the quality of the Pea, every one that has given its cultivation the least attention must admit, and that we are indebted to the English gardeners and amateurs for these improvements, must also be admitted. Our own seedsmen are beginning to realize the fact, that it is discreditable to themselves and their country to be outdone, even in Peas, and have produced some new varieties of superior merit. Peas for seed are now grown largely in New York State and Canada; previously they were nearly all imported.

Peach. *Persica vulgaris.* Persia is credited with being the native country of the Peach, and to have disseminated it largely. Columella says the Peach, when first brought into the Roman empire from Persia was poisonous, an opinion that has been questioned by other writers. It was early introduced into Greece, but at what period is uncertain. The Romans brought it direct from Persia during the reign of the Emperor Claudius. It was first mentioned by Columella, and afterward described by Pliny. From the best information we can obtain, the natural fruit, or wild Peach, was much inferior to the first introduced into the

United States in 1680. When, where, or by whom the improvements were made, is not even a matter of conjecture. What is positively known of the Peach at the present day is, that the United States and China produce the finest in the world. English gardeners, on coming to the United States, are at a loss to understand, that while in latitudes here where the thermometer falls 15° below zero, orchards of Peach trees stand unprotected in the open field, while in England, where the thermometer rarely reaches zero, the Peach must have the protection of a brick wall, or it fails to prove hardy. The reason is, that our hotter, drier summer and fall months better ripen the young shoots than the colder and moister climate of Britain. The Peach tree is short-lived in most sections of this country, attaining its best fruiting condition usually from six to ten years old. It prefers a light, warm soil, and is much benefited by an occasional dressing of wood ashes. In planting, the trees should be cut back severely, the main stem reduced about one third, and the side branches cut back to one bud. This lessens the demand upon the roots, and enables the remaining buds to push more vigorously. The heads should be kept low, the trunks not to exceed three feet in height, and as the fruit is produced on the wood of last season's growth, the necessity for keeping up a good supply of annual shoots all over the tree is obvious. Regular spring pruning should therefore be attended to, the weak shoots being shortened one half, and the strong ones one third, care being taken to leave a sufficient supply of flower buds. This keeps the head round, full, and well furnished with bearing wood, reduces the chances of wind-falls to a minimum, and, if annually followed, will give them compact heads instead of open, straggling ones, the branches of which break down with the first full crop of fruit. In the Peach-growing districts the cultivators do not expect more than three crops in five years; and if they get two full crops in that time they are content, and amateurs should expect no more. When a crop sets at all there is usually more fruit than the tree can carry and ripen. No fruit needs severe thinning more than the Peach. In bearing seasons half or two-thirds of the Peaches which set may be removed with benefit to the rest. The fruit should be removed when about the size of Hazel-nuts. "Two maladies affect the Peach Tree, and, because they are little understood, have rendered this fine fruit tree comparatively short-lived, and of little value in some sections of the country. These are the Yellows and the Peach-borer. The former appears to be a constitutional disease, no external cause being assigned for it, and, as yet, there appears to be no remedy for it, but by exterminating, root and branch, every tree which is infected with it. The eggs which produce the borer are deposited in the soft portion of the bark just at the surface of the earth. If a quantity of leached ashes or common soil be heaped to the height of one foot around the trunk in May and suffered to remain until October, the borer will not attack it. Another simple remedy is, in spring, to wrap the stem in strong coarse or tar paper about a foot high, securely tying it and protecting the lower part with earth."—Downing's Fruits and Fruit Trees of America. The distance the trees should be set apart may be from ten to twelve feet. Among the favorite varieties for garden culture may be named the following, for the descriptions of which see nursery catalogues: Alexander, Hale's Early, Yellow Rare-ripe, Early Louise, Crawford's Early, George the Fourth, Early Silver, Large Early York, Coolidge's Favorite, Haine's Early, Stump of the World, Noblesse, Morris White, Surpasse Melocoton, Crawford's Late, etc.

The Double-Blossomed Peach is, when in full bloom, one of the gayest and most beautiful of fruit trees, and blooming with its lovely companion the Double-Flowering Cherry, finds a place in all our pleasure-grounds and ornamental plantations. Its flowers are of a lively red color, nearly full double, and so thickly disposed on the branches as to be very striking and showy. This sort is rendered more dwarf for shrubberies by budding it upon the Mirabelle or the Cherry Plum stock. The fruit, which is sparingly produced, is roundish oval, pale greenish-yellow, tinged with red, and is of indifferent flavor. The Crimson or Camellia-flowered, with large double flowers of a rich crimson hue, especially attractive and showy, the Carnation-flowered with flowers striped like a Carnation, the Variegated-flowered with flowers of different hues on the same tree, and the White-flowered with pure white very double flowers, are among the more recent introductions, and grouped with the older varieties are very effective, and planted either singly or in groups produce most charming effects in the early spring.

Peach Myrtle. A common name for *Hypocalymna robustum.*

Peach Palm. The popular name for *Gulielma speciosa.*

Peacock Flower. The common name for *Poinciana regia.*

Peacock Flower Fence. A common name for *Adenanthera pavonina.*

Peacock Iris. See *Vieusseuxia.* Syn. *Iris pavonia.*

Peacock Treasure Flower. A name given to *Gazania pavonia.*

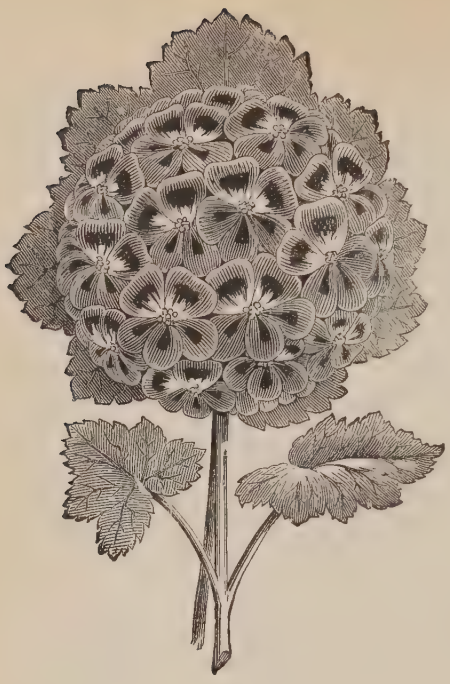
Pea Nut. See *Arachis.*

Pear. *Pyrus communis.* The Pear, like the Apple, is indigenous to most parts of Europe. Historically speaking, it is not so ancient as the Apple. At what period it became ameliorated, or removed from its wild state, is unknown. In regard to its hardiness and longevity, it is greatly superior to the Apple or any other of our fruits. There are trees existing, and in bearing condition, over three hundred years old. The Romans cultivated thirty-six varieties in the days of Pliny; and Parkinson, in his Herbal (1629) speaks of sixty-four sorts in the London nurseries. The history of the cultivated Pear has never been written. It was at an early period common in Syria, Egypt, and Greece; whence it was imported into Italy, France, Germany, and Great Britain. Pear culture in France has been carried on to a most wonderful extent, thirty-six hundred varieties having been offered from one nursery. The Pear, though not indigenous

PASSIFLORA (JOHN SPALDING).

PEAR (SPECIMEN DWARF).

PENNISETUM LATIFOLIUM (GYMNOTHRIX).

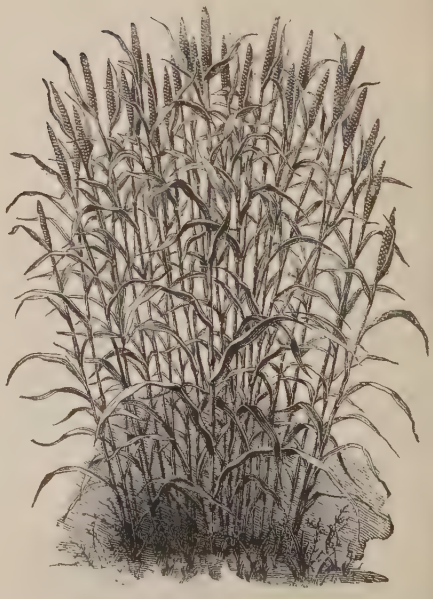


PELARGONIUM ECHINATUM.

PELARGONIUM (DOUBLE IVY).

PELARGONIUM (GOLDEN TRICOLOR).

PELARGONIUM (SHOW OR REGAL).



PENCILLARIA (PEARL MILLET).

to the United States, grows here to the greatest perfection, both as regards quality and quantity. The leading horticulturists of the country having made a speciality of its cultivation, aided by congenial soil and climate, their efforts for the production of perfect fruit have been happily rewarded. The Seckel, the recognized standard of perfection wherever the Pear is grown, is of American origin, having originated on the farm of Mr. Seckel, about four miles from Philadelphia. The following extract from Downing's "Fruits and Fruit Trees of America" may prove interesting to many: "The precise origin of the Seckel Pear is unknown. The first pomologists of Europe have pronounced that it is entirely distinct from any European variety, and its affinity to the Rousselet, a well-known German Pear, leads to the supposition that the seeds of the latter Pear, having been brought here by some of the Germans settling near Philadelphia, by chance produced this superior seedling. However this may be, the following *morceau* of its history may be relied upon as authentic, it having been related by the late venerable Bishop White, whose tenacity of memory is well-known. About eighty years ago, when the Bishop was a lad, there was a well-known sportsman and cattle-dealer in Philadelphia, who was familiarly known as "Dutch Jacob." Every season, early in the autumn, on returning from his shooting excursions, Dutch Jacob regaled his neighbors with Pears of an unusually delicious flavor, the secret of whose place of growth however, he would never satisfy their curiosity by divulging. At length the Holland Land Company, owning a considerable tract south of the city, disposed of it in parcels, and Dutch Jacob then secured the ground on which his favorite pear tree stood, a fine strip of land near the Delaware. Not long afterwards it became the farm of Mr. Seckel, who introduced this remarkable fruit to public notice and it received his name. * * * The original tree still exists (or did a few years ago), vigorous and fruitful. Specimens of its pears were quite lately exhibited at the annual shows of the Pennsylvania Horticultural Society."

The Pear is a peculiar fruit in one respect, which should always be kept in mind, viz.: that most varieties are much finer in flavor if picked from the tree and ripened in the house, than if allowed to become fully matured on the tree. There are a few exceptions to this rule, but they are very few; and on the other hand we know a great many varieties that are only second or third rate when ripened on the tree, but possess the highest and richest flavor if gathered at the proper time and allowed to mature in the house. This proper season is easily known, first, by the ripening of a few full grown, but worm-eaten specimens, which fall soonest from the tree; and secondly, by the change of color and the readiness of the stalk to part from its branch on gently raising the fruit. Pears are grown as dwarfs and standards; the former being planted from eight to ten feet apart, the latter from ten to fifteen feet. The dwarfs, budded on the quince stock, are mostly used for garden culture, as, from their habit, they are more suitable, besides having the invaluable quality of coming quicker into bearing. Time was when the adage went,

"He that plants Pears, plants for his heirs;" but this is now no more applicable to the Pear than to the Peach; for we can have fine crops of Pears budded on the Quince in three to five years from the time of planting. The following varieties are recommended for cultivation on the Quince. All are hardy, vigorous and handsome growers, and bear well. (For descriptions, see nursery catalogues.) Bartlett, Brandywine, Margaret, Duchess d'Angouleme, Belle Lucrative, Doyenne Boussock, Beurre Hardy, Howell, Louise Bonne of Jersey, Beurre Superfin, Beurre d'Anjou, Easter Beurre, and Lawrence. In addition to the above the following well-known sorts will be found to succeed admirably, grown as standards. Clapp's Favorite, Souvenir du Congres, Tyson, Beurre Bosc, Flemish Beauty, Hoosic, Seckel, Urbaniste, Beurre Clairgeau, Dana's Hovey, Winter Nelis, Josephine of Malines, etc.

Pear, Avocado or Alligator. *Persea gratissima.*

Pear. Prickly. See *Opuntia.*

Pear. Strawberry. *Cereus triangularis.*

Pearl Bush. The popular name of *Exochorda grandiflora.*

Pearl Millet. *Pencillaria spicata.* This fodder plant has been largely grown during the past few years, and promises to be most valuable for that purpose, particularly in the Southern States. It is a tender plant; that is, being of tropical origin it will not grow until the soil and atmosphere are in the condition to grow Corn, Tomatoes, Melons, or such plants as require a high temperature for growth. Like all plants grown for fodder, the richer the soil the greater the product. We quote from our published article on the subject in the "American Agriculturist," November, 1878, the locality of the experiment being on our grounds in Jersey City, N. J.: "Pearl Millet has been cultivated for some years as a forage plant in some of the Southern States, as 'African Cane,' 'Egyptian Millet,' 'Japan Millet,' and in some places as 'Horse Millet,' and 'Cat-tail Millet.' But little was known of it at the North before last year, and then only in such small quantities as to hardly allow of a fair trial. From what we saw of it in 1877, we determined to give it a thorough trial this season. A piece of good, strong, loamy ground was prepared as if for a Beet or Turnip crop, by manuring with stable manure at the rate of ten tons to the acre, plowing ten inches deep, and thoroughly harrowing. The Millet was then sown in drills eighteen inches apart, at the rate of eight quarts to the acre. We sowed on the 15th of May, about the date we sow corn, and in twelve days the plants were up so that a cultivator could be run between the rows, after which no further culture was necessary, for the growth became so rapid and luxuriant as to crowd down every weed that attempted to get a foothold. The first cutting was made July 1st, forty-five days after sowing. It was then seven feet high, covering the whole ground, and the crop, cut three inches above the ground, weighed, *green*, at the rate of thirty tons per acre; this, when *dried*, gave six and a half tons per acre, as hay. After cutting, a second growth started, and was cut August 15th, forty-five days from the time of the first cutting.

Its height was nine feet. It weighed this time at the rate of fifty-five tons to the acre, *green*, and eight tons dried. The *third* crop started as rapidly as the second, but the cool September nights lessened its tropical luxuriance, so that this crop, which was cut on October 1st, only weighed ten tons green, and one and a half tons dried. The growth was simply enormous, thus: First crop in forty-five days gave thirty tons green, or six and a half tons dry; second crop in forty-five days, gave fifty-five tons green, or eight tons dry; third crop in forty-five days, gave ten tons green, or one and a half tons dry; the aggregate weight being ninety-five tons of green fodder in 135 days from the date of sowing, and sixteen tons when dried to hay. This exceeds the Clover meadows of Mid-Lothian, which, when irrigated by the sewage from the City of Edinburgh, and cut every four weeks, gave an aggregate of seventy-five tons of green Clover per acre. There is little doubt that Pearl Millet is equally as nutritious as Corn fodder, which it resembles even more than it does any of the other Millets. We found that all our horses and cattle ate it greedily, whether green or dry. If sowing in drills is not practicable, it may be sown broadcast, using double the quantity of seed, say sixteen quarts per acre. The ground should be smoothed by the harrow, and again lightly harrowed after sowing. If rolled after harrowing, all the better. I know of no farm crop that will better repay high manuring, but, so great is its luxuriance, that it will produce a better crop without manure than any other plant I know of. In those parts of the Southern States where hay cannot be raised, this is a substitute of the easiest culture; and being of tropical origin, it will luxuriate in their long hot summers. Even though our Northern seasons may be too short to mature the seeds, our experiments in New Jersey this summer show what abundant crops may be expected if similar conditions are secured. Pearl Millet as a fodder plant presents a new feature in our agriculture, and I feel sure that within ten years we shall wonder how we ever got on without it. As we have had many inquiries as to the best manner of drying Pearl Millet for 'Hay,' we would state that our crop was sown in a solid block, so that when cut it had to be removed from the land where it grew, tied in sheaves, and hung up on an extemporized rail fence. This plan, of course, would not answer when grown on a large scale, as the crop is so enormous that such an expedient for drying would be too expensive both for labor and rails, and as it is too heavy and succulent to be dried, like Timothy and Clover, on the ground where it is cut, it must be removed, for to attempt to dry it where it grows would destroy the second crop. Circumstances, of course, must in a great measure be the guide, but we would suggest that, when grown for the purpose of being dried, it be sown in beds, say twelve feet wide, with alleys six feet between, where it may be dried; this, of course, would be a loss of one-third of the land for the first crop, but it would be little or no loss of crop in the second, for the Millet would spread so as to fill up all the six feet of alley."

Pearl-Plant. *Lithospermum officinale.*

Pearls of Spain. *Muscari botryoides*, var. *album.*

Pearl Weed or **Pearl Wort.** See *Sagina.*

Pearly Everlasting. See *Antennaria.*

Pecan Nut (*Carya olivæformis*).

The Pecan is cultivated quite extensively now in the Southern States, and it may be found growing on river-banks from Indiana to Texas. Although the tree is well known for its delicious nuts, which constitute an article of considerable commerce, it has not been cultivated systematically for profit until recently, except in a few localities in Texas and Mexico. The demand for Pecan-nuts both in this country and in Europe, far exceeds the supply, and owners of land in the South, bordering on river bottoms, would do well to plant it with the thin or paper shelled variety. In Florida there are many acres of low rich land, aptly called there "flat woods," which it is almost impossible to drain, and which, as the trees do not seem to mind an overflow of water occasionally, would be just the place for Pecan groves. Land along the bayous and river-bottoms all over the Southern States, being comparatively cheap, owing to destructive overflows of water, the prospect is that much of this waste land will be taken up by Pecan-groves, which will well repay the planter in eight or ten years at most. Young groves planted some few years ago in a low flat-wood as an experiment, are now doing finely. As they increase in size and age their growth becomes rapid and their bearing increases, the crop nearly doubling itself every year or two.

Pectinate. Pinnatifid, or pinnately divided into narrow and close divisions, like the teeth of a comb.

Pe'ctis. From *pecten*, a comb; referring to the pappus. Nat. Ord. *Compositæ.*

A large genus of green-house or half-hardy annual or perennial herbs, natives of the warmer parts of America, from Brazil or Bolivia as far as Mexico. *P. angustifolia* is a charming annual, well suited for bedding purposes. It ranges in height from six to ten inches, and the flowers are of rich golden yellow, and so freely produced as to form dense cushions. It was introduced to cultivation in 1865.

Pedalia'ceæ. A natural order of herbaceous perennial, rarely annual plants, natives of tropical countries, principally Africa. The order is allied to *Bignoniaceæ*, but differs in the divisions of the seed pod and the wingless seeds. The seeds of *Sesamum indicum* and *S. orientale* yield an abundance of fixed oil of good quality, known as Sesamum or Gingile Oil. The young seed-pods of *Martynia*, the Unicorn plant, are used for pickling. *Martynia*, *Uncaria* and *Sesamum*, are examples of the genera, which number about a dozen.

Pedate. Resembling a bird's foot; a modification of the palmate leaf, when its lower lobes are again divided and directed downwards, as in *Saxifraga pedatifida.*

Pedicel. The stalk of each particular flower in a cluster.

Pedicula'ris. From *pediculus*, a louse; the supposed effect on sheep eating it. Nat. Ord. *Scrophulariaceæ.*

A genus of plants popularly known as Louse-worts. *P. sylvatica* and *P. palustris*, indigenous to Great Britain, were formerly supposed to produce in sheep eating them the disease which gave name to the genus; but there is no good reason for such belief. Some of the species are beautiful little plants, with very regular, finely cut leaves. *P. Canadensis*, the Wood Betony, is a rather showy, native perennial, with spikes of greenish-yellow and purple flowers, common in open woods and on banks, flowering from May till July. *P. lanceolata* is brighter in color, from one to three feet high, and is found in swamps from Connecticut to Virginia and Wisconsin. It flowers during August and September.

Pedilan'thus. From *pedilon*, a slipper, and *anthos*, a flower. Nat. Ord. *Euphorbiaceæ*.

A small genus of curious plants, resembling in habit and general appearance the *Euphorbia*, to which genus they may be referred for cultivation.

Peduncle. A flower-stalk, whether of a single flower, or of a flower cluster.

Peg-wood. A name applied to *Cornus sanguinea*, and *Euonymus Europæus*.

Pelargo'nium. Stork's bill. From *pelargos*, a stork; referring to the beak-like formation of the seed-pod. Nat. Ord. *Geraniaceæ*.

A very extensive genus of green-house evergreen-shrubs, and a limited number of biennials and annuals. They are mostly natives of the Cape of Good Hope; a few occur in Australia, one in the Canary Islands and one in Asia Minor. The Scarlet kinds are popularly called Geraniums, though very different from the genus of that name, when viewed in a botanical sense. The greater number of kinds cultivated in the green-house and garden are hybrids, which are produced with great facility in this genus. The number of varieties already produced, embracing a great range of form and color, is truly astonishing, and every year adds to the number new varieties in some respect superior to any before introduced. The improvements in the foliage even has been almost as marked as in the flower. We have now a sufficient number of varieties with ornamental foliage to constitute a distinctive feature in the green-house, and which are useful to the florist in making up his bouquets, baskets, and ornamental designs. All this is due to the untiring zeal of the florist. We cannot follow up the history of the introduction of these choice hybrids, but must be content with giving a brief account of the species to which the various classes belong. All the species noted are natives of the Cape of Good Hope, unless otherwise mentioned. The Fancy and Show Pelargoniums, strictly green-house varieties, and unsuitable for the border, are descendants of *P. grandiflorum*, introduced in 1794. One of the hybrids was called "Lady Washington," which gave the whole class the popular name, "Lady Washington Geraniums." Some division of this class also have the distinctive appellation of French Pelargoniums, probably because they had their origin with the French hybridists. As specimen plants for green-house or conservatory decoration, these have decided merit. There are few cultivated plants that make a more beautiful display, when they receive the care and attention they need. *P.*

inquinans, Scarlet Pelargonium, is one of the parents of that large and important class now known as Bedding, Scarlet, or Zonal Geraniums, and formerly very generally called Fish and Horseshoe Geraniums, and of which we now have an immense variety of double and single, embracing every shade of scarlet, crimson, rose, carmine, violet, white, etc. This species has a splendid habit, being dwarf and compact, the flowers are intense scarlet, of good form and substance; it has large reniform, indistinctly zoned leaves, soft to the touch, and exhaling, when rubbed, an aromatic odor, which is unpleasant to most persons. *P. zonale*, Zonal Geranium, or Horseshoe Geranium, so-called from a dark, discolored zone on the surface of the leaf, is a smaller species than the preceding, and has the leaves more strongly marked. The petals of the flower are narrower, and of a deep carmine color. A variety of this, *P. marginatum*, is the well-known Silver-leaved Geranium. All the "Tricolors," such as Mrs. Pollock, Sunset, Golden Tricolor, etc., have originated from the above few species. It must not be supposed that all these beautiful colors, both in foliage and flower, have been produced hastily, or that they are in the true sense hybrids. Persistent cross fertilization of the many varieties, that has been carried on for the last thirty years, has given us the rare sorts enumerated in florists' catalogues. We think it is not to be doubted, however, that some of the "Tricolors" are simply "Sports." *P. peltatum* is the Ivy-leaved Geranium. Of this species there are two varieties that were introduced in 1701, and from these have sprung many beautiful sorts, which grow rapidly and flower freely. From their graceful, trailing habit they are useful for window gardening and rustic work. Many of the Ivy-leaved have handsome double flowers. Of the species, besides those noted above, we will briefly mention *P. echinatum*, introduced into England in 1797, but mostly lost sight of until recently, except in collections of old plants. It is, indeed, an entirely distinct species, and one of the best for general cultivation for cut flowers. The foliage is covered with a white, silvery down; the lower petals of the flowers are pure white, and the upper ones marked or blotched with dark purple or maroon. In their habitat several variations in color appear, but are all of the same general character. *P. capitatum* is the popular Rose Geranium, which was introduced in 1690. *P. quercifolium* is the larger Oak-leaved Geranium, introduced in 1774. *P. graveolens* is the Lemon-scented Geranium; *P. vitifolium* is the Balm-scented Geranium, receiving its specific name from the resemblance of its leaves to those of the Vine; *P. fragrans* is the Nutmeg-scented Geranium, introduced in 1731; *P. tomentosum* is the Pennyroyal Geranium; *P. gratum* is the Citron-scented Geranium; *P. odorata* is the Apple-scented Geranium. Between some of the above species hybrids have been produced, but we cannot trace them with any degree of confidence, and therefore make no mention of them.

Pelecy'phora. Hatchet Cactus. From *pelakyphoros*, hatchet-bearing, referring to some fancied resemblance in the tubercles to a hatchet. Nat. Ord. *Cactaceæ*.

P. Aselliformis, the only described species, has white and rose colored flowers, borne near the summit of the stem. It is very nearly allied to the Mammillarias, but in place of the spines of that genus it bears two rows of flat horny scales, which overlap like the tiles on a roof. It was introduced from Mexico in 1843.

Pele'xia. From *pelex*, a helmet, referring to the shape of the back sepals. Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial orchids, natives of tropical America. The species are not very ornamental, and are seldom seen in cultivation.

Pelican-Flower. A common name for *Aristolochia grandiflora.*

Pe'llæa. An extensive genus of Ferns, both native and exotic, many of them very handsome. *P. gracilis*, and *P. atropurpurea*, are our best known native species. According to later authorities many of the species formerly placed under *Platyloma*, *Allosorus*, *Pteris*, etc., are now classed with this genus. As constituted at present it contains upwards of sixty species.

Pellicle. A thin skin that envelopes certain seeds.

Pellio'nia. Named after *A. A. Pellion*, an officer in Freycinet's voyage round the world. Nat. Ord. *Urticaceæ.*

A genus of stove-house plants, often creeping at the base; natives of tropical and eastern Asia, as far as Japan and the Pacific Islands. *P. Daveauana* is by its pendant habit admirably adapted for basket-work for the greenhouse. The leaves much resemble *Tradescantia zebrina* in shape, but are much more handsome. The centre of the leaves is light green, with a broad band around the margin of dark brown or chocolate. At first sight it would easily be mistaken for one of the fine-foliaged Begonias but it is quite distinct from that genus. Introduced from Cochin China in 1880.

Pellitory of Spain. See *Anthemis.*

Pellitory of the Wall. *Parietaria officinalis.*

Pelo'ria. An irregular flower, become irregular by a monstrous development of complementary irregularities (Prof. Asa Gray).

Pelta'ndra. From *pelte*, a buckler, and *aner*, a man. Nat. Ord. *Aroideæ.*

P. Virginica, formerly called *Arum Virginicum*, is a common aquatic plant, in shallow waters, from New York southward. The root-stock contains a considerable amount of starch.

Peltate. Target-shaped, shield-like; attached by the middle, as the leaf of *Tropæolum.*

Peltatifid. When a peltate leaf is sub-divided.

Pelviform. Shallowly cup-shaped; basin-like.

Penang Lawyers. See *Licuala.*

Pencil Flower. The genus *Stylosanthes.*

Pendulous. Drooping; hanging down.

Penicilla'ria. From *penicillus*, a pencil; in allusion to the spikes. Nat. Ord. *Graminaceæ.*

A genus of grasses now included under *Pennisetum.*

Penicillate, Penicilliform. Resembling a camel's-hair pencil; consisting of, or covered

with hairs, which are nearly parallel with each other. Sometimes marked with color, as if laid on in streaks with a camel's-hair pencil.

Penniform. Having the ribs of a leaf arranged in a pinnated leaf, but confluent at the point as in the Date Palm.

Penninerved, Penniveined. Having main veins or ribs, running straight from the margins, at equal distances.

Pennise'tum. From *penna*, a feather, and *seta*, a bristle; referring to the long feathered bristles of the flower spikes. Nat. Ord. *Graminaceæ.*

A small genus of grasses of no agricultural value, but affording one or two species that are highly prized in the ornamental garden, and for their uses as dried grasses in the various forms in which they are employed. One of the most beautiful species is *Pennisetum longystylum*, and for a low growing grass there is none more to be desired. The heads are cylindrical in form and their weight bends down their slender culms into every variety of the line of beauty; the glumes and paleæ are of delicate whiteness, and the styles so long and feathery that they resemble tassels of white chenille. It grows from two to three feet high and forms a very handsome clump. *P. latifolium* (syn. *Gymnothrix latifolium*), introduced from Montevideo in 1869, is also a very ornamental perennial species, with beautiful nodding spikes. It, as well as *P. longystylum*, should be taken up at the approach of winter and placed under cover.

Pennyroyal. The common name of *Mentha Pulegium.*

Pennyroyal. American. The popular name of *Hedeoma pulegeoides.*

Pennyroyal. Bastard. *Trichostema dichotomum.*

Pennyroyal. False. *Isanthus cæruleus.*

Pennyroyal. Tree. *Satureja viminea.*

Pennywort. *Sibthorpea Europæa;* also *Cotyledon Umbilicus*, and *Linaria Cymbalaria.*

Pennywort. Marsh. *Hydrocotyle vulgaris.*

Pennywort. Water. *Hydrocotyle Americana.*

Pentade'sma. From *pente*, five, and *desma*, a bundle; the stamens are disposed in bundles of five. Nat. Ord. *Guttiferæ.*

P. butryacea, the Butter and Tallow Tree of Sierra Leone, is a large tree, yielding in several parts, especially in the fruit, when cut, a yellow greasy juice, whence is derived its popular name. The leaves are large, leathery, beautifully marked with numerous parallel veins; the flowers large and handsome, solitary and terminal. The fruits are said to be edible. It was introduced in 1822 and may be propagated by cuttings of the ripened wood.

Pentape'ra. From *pente*, five, and *pera*, a bag; referring to the five-celled ovary. *P. sicula*, the only described species, is a low, much-branched, Heath-like shrub, a native of Sicily, Cyprus, and Barca, distinguished from the true Heaths by its pentamerous flowers (which Sir Joseph Hooker points out is not a constant character), by its large sepals and pubescent ovary. The flowers are larger than those of the other European Heaths, and are pure white.

PEN

Pentaptery'gium. From *pente*, five, and *pterygion*, a small wing. Nat. Ord. *Vacciniaceæ*.

A small genus of green-house shrubs, natives of the temperate Himalayas and the Khasia Mountains. The flowers are red, yellow, or white bedewed with red, rather large and showy. *P. flavum*, flowers yellow, margined with red; *P. rugosum*, flowers nearly white, beautifully marbled with purple or blood-red bands, and *P. serpens*, with bright red flowers, are the best known species, and are all neat and attractive plants. As they are naturally epiphytal in their habits, they can be grown in hanging-baskets or pots as desired, and are propagated by cuttings.

Pentarha'phia. From *pente*, five, and *raphis*, a needle; referring to the form of the open calyx. A genus of *Gesneraceæ*, composed of shrubby or half-shrubby plants inhabiting the West India Islands, a few being also found in Central America. Several species with bright red, or scarlet flowers are in cultivation. For culture, etc., see *Gesnera*.

Pe'ntas. From *pente*, five; referring to the number of petals and stamens. Nat. Ord. *Rubiaceæ*.

P. carnea, the best known species, is a very handsome green-house plant with delicate flesh-colored flowers, copiously produced in dense corymbs or cymes. It is valuable, not only for the richness of its flowers, but also for the lengthened period during which they are produced, and although it requires a hot-house to flower freely in winter, yet it may be kept in a green-house, and will then bloom from April till the following October. Propagated by cuttings of young shoots in sandy soil in the hot-bed or green-house in spring; the young plants will bloom freely during the summer. Introduced from South Africa in 1842.

Pentla'ndia. Named after *J. B. Pentland*, an English consul-general in Peru. Nat. Ord. *Amaryllidaceæ*.

A small genus of very showy green-house bulbous plants from Peru. *P. miniata*, the most beautiful of the species, bears a solitary lanceolate leaf, appearing before the flowers, which are borne on a solid scape supporting an umbel of about half a dozen drooping vermilion colored flowers. They flower in early autumn, and should rest during winter, in the same manner as the Amaryllis. They were first introduced in 1836, and are propagated by offsets. This genus is included under *Urceolina* by some authors.

Pentste'mon. From *pente*, five, and *stemon*, a stamen; there are four perfect stamens and one imperfect. Nat. Ord. *Scrophulariaceæ*.

An extensive genus of hardy and half-hardy herbaceous plants. Several of the species are common from North Carolina to Florida. The more showy species, those usually cultivated, are natives of Texas, Oregon, Colorado, Rocky Mountains, etc., and Mexico. Those introduced into the garden are beautiful plants, growing from one to three feet high, with white, pink, scarlet, blue, or purple flowers, produced freely from April until October. Within the past few years great improvements have been made in the garden varieties or so-called hybrids of the Pentstemon, by judicious selection of seminal varieties of *P. Hartwegii*, *P. Cobæa*, and *P. Gentianoides*, which, though they possess a wide variation in color, lack the beautiful clear blue which we find in some of the species. Most of them grow well in a light loam. They should have as dry a situation as the garden affords, as they suffer more from wet than cold, and are the better of the protection of a cold frame during winter. Several of the Californian species, of late introduction, are very difficult to winter over in the border; being found in a coarse, sandy soil, and their period of rest being the dry season, they seem little inclined to adapt themselves to our climate. The beauty and profusion of the flowers will, however, pay for the protection they may need against the elements. Many of the species will flower the first season from seed, if sown in the green-house, or on an early hot-bed, and once transplanted before being transferred to the open border. The following species are all desirable: *P. azureus*, *P. barbatus*, *P. campanulatus*, *P. Cobæa*, *P. diffusus*, *P. Fendleri*, *P. heterophyllus*, *P. Jaffrayanus*, *P. Murrayanus*, *P. procerus*, *P. Scouleri*, etc.

PEP

Pee'ny. See *Pæonia*.

Pepero'mia. From *piper*, pepper, and *omoios*, similar. Nat. Ord. *Piperaceæ*.

An extensive genus of green-house evergreen and herbaceous ornamental-leaved plants, abundant in Central and South America, the Sandwich Islands, southern Africa, and the East Indies. The majority are small creeping plants with fleshy leaves, growing on trunks of trees, or on damp rocks; others are more erect, of a shrubby character, and are terrestrial in their habits. Several of the species have been introduced into the green-house for the sake of their foliage; prominent among them is *P. maculosa*, a dwarf-growing species, with inconspicuous flowers, but very beautiful foliage. This species is readily increased by leaf cuttings, treated in the same manner as *Begonia Rex*. It is a native of St. Domingo. First introduced in 1790. *P. resedæflora*, or Mignonette flowered, introduced from New Grenada in 1870, bears small, spire-like spikes of white flowers at the apex of pink stems, the lower portions of which are furnished with small velvety leaves. It is used for button-hole bouquets, and is suitable for florists' work generally. *P. brevipes* (syn. *P. prostrata*), introduced in 1880, has round, thick, fleshy leaves, variegated with light and dark shades of green, and a brownish tinge. They are borne on long slender stems, which appear to the best advantage when pendulous, grow rapidly, and may be readily increased by pegging small portions of the stem down on the soil. It is admirably adapted for basket culture, well-grown specimens furnishing beautiful drooping sprays four to five feet long.

Pepo. "A one-celled, many-seeded, inferior fruit, with parietal placentæ, and a pulpy interior, as a Gourd."—*Lindley*.

Pepper. See *Piper*.

Pepper. Bird. *Capsicum baccatum*.

Pepper-bush. Sweet. A common name for *Clethra alnifolia*.

Peppergrass. See *Lepidium*.

Pepperidge. See *Nyssa*.

PEP

Peppermint. *Mentha piperita.*

Pepper-root. See *Dentaria.*

Pepper Shrub. See *Schinus.*

Pepper Vine. A popular name of *Ampelopsis bipinnata.*

Pepper. White, is *Piper nigrum* with the black husks removed.

Pepperwort. See *Lepidium.*

Peppermint-Tree. A common name for several species of *Eucalyptus.*

Perennials. Plants which last for several years are termed Perennials. This term is most generally applied to hardy herbaceous plants of this character, when it is necessary to distinguish between those which are perennials, and those which are of only annual or biennial duration. For a selection of which, see "Herbaceous Plants."

Perennis. Lasting from year to year.

Pere'skia. Barbadoes Gooseberry. Named after *Nicholas F. Pieresk,* a French patron of botany. The generic name is sometimes written *Pierescia.* Nat. Ord. *Cactaceæ.*

This genus consists of about a dozen species, and is allied to the Cactus. Some are tree-like and have woody stems, but they are mostly shrubs with fleshy stems, flat leaves, and round branches armed with tufts of spines, and bearing terminal solitary or clustered flowers, generally on short stalks. *P. aculeata* is indigenous in the West Indies, where it is commonly known as the Barbadoes Gooseberry or Gooseberry Shrub. It grows about fifteen feet high, the stem armed with bundles of straight spines, and having trailing branches bearing oblong, elliptical leaves and clusters of beautiful white flowers, and yellow, eatable, and pleasant-tasted fruit, which is used in making preserves, in the same manner as the common garden Gooseberry is used. This species is an excellent subject to graft Epiphyllums, etc., on, and is much used for that purpose. *P. Bleo* is called Bleo by the natives of New Grenada, where it is indigenous. It is a shrub growing eight or ten feet high, with rather soft, fleshy leaves, five or six inches long, of an elliptical form, sharp pointed at the top, and tapering to the base. It bears handsome rose-colored flowers, with ten petals in two series, the inner of which are the largest and deepest colored. The leaves are eaten as a salad in Panama. Propagated by cuttings.

Perfect. Complete in all the usual parts.

Perfoliate. When the two basal lobes of an amplexicaul leaf are united together, the leaf completely surrounding the stem, so that the stem seems to pass through the leaf, as in *Eupatorium perfoliatum* (Boneset).

Perforate. Pierced with holes, or with transparent dots resembling holes, as an Orange leaf.

Pergula'ria. From *pergula,* trellis-work; referring to its quick climbing growth. Nat. Ord. *Asclepiadaceæ.*

A small genus of green-house evergreen climbers, allied to *Stephanotis.* Some of the species are remarkable for their sweet-scented greenish white flowers. They are natives of the East Indies and Java, but are very little cultivated.

PER

Perianth. The calyx and corolla combined; that is to say, when they look so much alike that they cannot be readily distinguished, as in a Hyacinth.

Pericarp. The shell or rind of all fruits taken as a whole. When it separates into layers, each layer may have a different name, but the whole is still the pericarp.

Pericladium. The sheathing base of a leaf when it expands and surrounds the supporting branch; the dilated, sheathing base of some petioles, especially among Umbellifers.

Periclinium. The involucre of the flower-heads of Composites.

Periderm, Peridermis. The outer cellular layer of bark below the epidermis.

Perigynous. Growing upon some part which surrounds the ovary, usually the calyx, though sometimes the corolla is also included within the meaning.

Peri'lla. Derivation of name unknown. Nat. Ord. *Labiatæ.*

A small genus of hardy annuals, natives of China and East Indies. *P. ocymoides crispa* (syn. *P. Nankinensis*) has deep purple leaves, and at one time was much used as an ornamental border plant, but from its somewhat weedy appearance and wonderful productiveness, it has been pretty generally discarded.

Periplo'ca. From *periploke,* an intertwining; referring to the habit of the plant. Nat. Ord. *Asclepiadaceæ.*

A small genus of hardy deciduous and green-house evergreen twiners, inhabiting southern Europe, Asia, and Africa. *P. Græca,* an ornamental species, has long been known in cultivation, and is very common in the hedge-rows of southern Europe. It has purplish flowers, arranged in axillary clusters. The juice of this species is exceedingly poisonous, and is used in the East for destroying wolves. Propagated by layers or cuttings.

Peri'ptera. From *periptera,* a shuttlecock; alluding to the resemblance in the form of the flower. Nat. Ord. *Malvaceæ.*

M. punicea is a pretty little shrub with crimson flowers, introduced from Spain in 1814. It grows freely in a compost of loam and peat, and is propagated by cuttings or seeds.

Periste'ria. From *peristera,* a dove; in allusion to the dove-like appearance of the column. Nat. Ord. *Orchidaceæ.*

A small genus of splendid terrestrial Orchids. The best known and most beautiful of the species is *P. elata,* a native of Panama, where it is known as *El Spirito Santo,* the Holy Ghost Plant; the reason of this name is obvious on looking at the flower; the central member exhibits a column, which, with its summit and the projecting gland of the pollen masses, together with the erect wings, bears a very striking resemblance to the figure of a dove; hence the English name of Dove Flower. Its flower stem rises from the base of the pseudo-bulbs, and attains a height of from four to six feet, its upper portion, for about one-third of the length, being covered with nearly round, very sweet-scented flowers, each about an inch and a half across, and of a creamy white, with small lilac specks on the

base of the lip. They should be grown in well-drained pots of light, rich, fibrous loam, with a liberal mixture of fine sand and broken charcoal. They succeed well in an ordinary green-house, but are impatient of much water, particularly when at rest. They flower during the summer months, and remain in bloom several weeks. It is propagated by division, and was introduced in 1826.

Peristro'phe. From *peristrophe*, turning round, in reference to the corolla, which is twisted so as to be upside down. Nat. Ord. *Acanthaceæ*.

A small genus of green-house herbaceous plants, natives of India, with small purple flowers produced in winter, and continuing in full beauty for several weeks. *P. angustifolia variegata*, an ornamental plant, with foliage variegated with yellowish-white and green; it is a very useful plant in window gardening or rustic work, and is propagated readily by cuttings.

Peri'toma. From *peritome*, a cutting round about; referring to the base of the calyx. Nat. Ord. *Capparidaceæ*.

A small genus of hardy annual herbs now included by Bentham and Hooker under *Cleome*. *P. aurea* is the only species of interest.

Periwinkle. See *Vinca*.

Perne'ttya. Named after *Don Pernetty*, author of "A Voyage to the Falkland Islands." Nat. Ord. *Ericaceæ*.

A genus of half-hardy evergreen, white flowering shrubs, natives of Mexico and Peru. They are not sufficiently hardy to endure our winter without protection, and have no merits that entitle them to a place in the green-house.

Perono'spora. A genus of minute Fungi, all growing in, or upon living plants. The species that has done most harm and is most to be dreaded is the Potato disease Fungus, *P. infestans*, known also as *Phytophthora infestans*. There are many other species that attack various vegetables such as Parsley, Carrots, Turnips, Cabbages, Peas, Spinach, etc., and are frequently most injurious to these plants. As it is now well understood that these Fungi live inside the host-plants, and that it is impossible to destroy the parasite without destroying the plant, all efforts should be directed against the spread of the disease, since a cure of the diseased plant is practically hopeless. All diseased plants are liable to communicate the disease to healthy plants and should, if possible, be burned, that being the only certain means of preventing the spread of the disease.

Perse'a. Alligator or Avocado Pear. A name applied by Theophrastus to an Egyptian tree. Nat. Ord. *Lauraceæ*.

The Alligator Pear, a native of the West Indies, grows upon a tree about the size of the Apple-tree. The tree has oblong, veiny leaves, and yellowish-green flowers. The fruit, which is the size of a large Pear, is considered by the natives one of the most delicious in the world, though strangers do not at first relish it. It contains a large quantity of firm pulp, possessing a buttery or marrow-like taste, and is therefore frequently called Vegetable Marrow or Midshipman's Butter. It is usually eaten with spice, lime-juice, or pepper and salt. The trees cannot be induced to grow excepting in tropical or sub-tropical countries.

Persian Powder. A valuable insecticide manufactured from the flowers of *Pyrethrum roseum* and other species.

Pe'rsica. The Peach. So named from *Persia*, its supposed native country. Nat. Ord. *Rosaceæ*.

A small genus now included by Bentham and Hooker under *Prunus*. *P. vulgaris* and its variety *P. V. lævis* are well known and much esteemed fruits; for culture and description of which, see Peach and Nectarine.

Persica'ria. A common name for *Polygonum Persicaria*.

Persimmon. See *Diospyros Virginiana*.

Persimmon. Japanese. See *Diospyros Kaki*.

Persistent. Remaining beyond the period when such parts commonly fall, as the leaves of evergreens, and the calyx, etc., of such flowers as remain during the growth of the fruit.

Personate. Masked; a bilabiate corolla, with a projection or palate in the throat, as of the Snapdragon.

Perso'onia. Named after *C. H. Persoon*, author "Synopsis Plantarum" and other botanical works. An extensive genus of *Proteaceæ*, comprising some sixty species of green-house ornamental shrubs found in most parts of Australia. One species, *P. Toro*, a lofty tree, is found in New Zealand. A number of species are in cultivation, and are admirable for large conservatories. They are propagated by cuttings of the ripened shoots.

Pertuse. Having slits or holes.

Peru. Balsam of. *Myroxylon Peruiferum*.

Peru. Marvel of. See *Mirabilis Jalapa*.

Peruvian Bark. See *Cinchona*.

Peruvian Daffodil. A common name for *Hymenocallis* (*Ismene*) *Calathina*.

Pes. The Latin for the foot or stalk; as in compounds, Brevipes, short-stalked; Longipes, long-stalked, etc.

Pescato'rea. A genus of Orchids now included under *Zygopetalum*.

Petaloste'mon. Prairie Clover. From *petalon*, a petal, and *stemon*, a stamen, referring to the peculiar union of these organs in this genus. Nat. Ord. *Leguminosæ*.

A genus of hardy or half-hardy perennial herbs closely allied to *Dalea*, natives of the southern United States. The flowers are rose-colored, purplish violet, or white. *P. candidus*, and *P. violaceus* are both good subjects for the herbaceous border.

Petaloid. Similar to a petal in color and texture.

Petals. The division of the corolla, or flower when they are not united to each other by their edges.

Petasi'tes. From *petasos*, an umbrella; alluding to the size of the foliage. A genus of *Compositæ*, natives of Europe, Asia and North America. Many of the species formerly included under *Tussilago*, have now been referred to this genus. They are principally coarse-growing weeds though some of the species being very early flowering are worth

cultivation. *P. vulgaris* is the Bog Rhubarb, or Butter Bur.

Petiole. The foot-stalk of a leaf.

Petiole. Common. The first and principal leaf-stalk in compound leaves.

Petive'ria. Named after *James Petiver*, a distinguished botanist of London, 1665–1718. Nat. Ord. *Phytolaccaceæ.*

P. Alliacea, or Guinea Hen Weed, the only cultivated species, is an ornamental, slender, erect green-house plant, with an onion-like smell. It is found from Mexico to Brazil, and is seldom seen in cultivation.

Petræ'a. Linnæus dedicated this genus to Robert James, *Lord Petre*, a celebrated patron of botany, who died in 1742. Nat. Ord. *Verbenaceæ.*

A genus of twining shrubs or small trees, natives of Mexico and South America. *P. volubilis* and some of the other species are very beautiful flowering climbers. The flowers are large, of a deep violet color, and produced in graceful racemes, and are increased by cuttings in spring. They were first introduced in 1834.

Petræus, Petrosus. Growing in rocky or stony places.

Petro'bium. From *petros*, a rock, and *bio*, to live, alluding to the habitat of the species. Nat. Ord. *Compositæ.*

P. arboreum, the only described species, is an ornamental green-house shrub with yellow flowers. Introduced from St. Helena in 1816, it succeeds well in sandy loam, and is readily increased by cuttings.

Petroca'llis. From *petros*, a rock, and *kalos*, beautiful; the plant adorns the rocks on which it grows. Nat. Ord. *Cruciferæ.*

P. Pyrenaica, the only species, is a pretty little tufted plant, peculiar to Alpine places in the Pyrenees, and growing in dense patches, like many of the *Saxifragas*. The stems, an inch or two high, are densely clothed with wedge-shaped, lobed leaves, and terminate in a raceme of rather large, purplish flowers, which are followed by small, oval, swollen, two-celled seed-pods. It is a very interesting plant for a rockery, but must be given but little soil and the most complete drainage. Syn. *Draba.*

Petroco'smea Sinensis. A new genus of *Gesneraceæ*, of which the present species is the only one so far described. It is a beautiful little plant with violet or blue flowers and resembling a Violet in habit. It was found by Dr. Henry (1888) growing on the surface of a rock in the bottom of a small cave near Ichang (China) with the leaves closely pressed against the rock.

Petro'phila. From *petros*, a rock, and *phileo*, to love; in allusion to the place of growth. Nat. Ord. *Proteaceæ.*

A genus of about twenty-five species of green-house shrubs, natives of Australia, with white or yellow flowers in dense, terminal spikes or cones. They are seldom cultivated except in large conservatories.

Petroseli'num. A synonym for *Apium Petroselinum*, which see.

Pettigree, or Pettigrue. A common name for *Ruscus aculeatus.*

Pettiwhin. A popular name for *Genista Anglica* and *Ononis arvensis.*

Petu'nga. Peetunga is the name of *P. Roxburghii* in Bengal. Nat. Ord. *Rubiaceæ.*

A small genus of ornamental plant-stove shrubs, natives of eastern Bengal, the Malay Peninsula and the Indian Archipelago. *P. Roxburghii*, the only cultivated species, is a very ornamental plant, with white flowers; easily increased by cuttings in heat.

Petu'nia. From *petun*, Brazilian name for tobacco, to which the Petunia is allied. Nat. Ord. *Solanaceæ.*

A small genus of half-hardy herbaceous perennials, all natives of South America, and mostly confined to Brazil. Though coming from a tropical country, where they are strictly perennial, they may be grown as hardy annuals. In the whole range of what are called "bedding plants," there is not an individual that can be said to exceed in general usefulness the Petunia. They are of the easiest culture, seeding themselves when once planted, growing in any soil that will sustain plant life, and producing the most showy flowers in the greatest profusion. Few, if any, plants have come so rapidly into popular favor, or have been so much improved by hybridization and cultivation. Only a few years ago they were comparatively unknown, and now there is not a garden, either large or small, where they are not grown; nor are they confined to the garden, as the windows of the workshop and the humble tenement so cheerily testify. *P. nyctaginiflora*, the common White Petunia, was first introduced into England from Brazil in 1823. It was but little cultivated, and only in the green-houses as a perennial, until 1830. At this period *P. violacea* or *P. Phœnicia*, as it is sometimes called, was introduced from Buenos Ayres by a Mr. Tweedie, a botanical collector, who sent seeds of it to the Botanic Garden at Glasgow. It was soon found that it would propagate freely from seed, and in a short time it became widely disseminated. It was figured and sent out first as *Salpiglossis integrifolia* and *Nierembergia Phœnicia.* From these two species all our garden varieties have been produced. To Isaac Buchanan, of New York, belongs the credit of having first hybridized these species, the result being the magnificent blotched and striped varieties now so extensively cultivated. His first effort was crowned with the most complete success, the hybrids being as perfectly and distinctly marked as any since produced. These were for a number of years offered in seedsmen's catalogues as "Buchanan's Hybrids." Many other splendid sorts have been produced in this country, and among them the "Fringed Petunia," from which the Germans have succeeded in getting a double variety, finely fringed. Many double varieties are now sent out each season, claiming special merit. They are well adapted for green-house culture, but for massing or extended borders, the best marked single varieties are far superior, because they produce their flowers in greater abundance. Where a mass of any particular color is desired, it is better to strike cuttings of the favorite kinds in the fall. For the mixed border, the seeds may be sown where wanted to grow; or, if wanted to flower early, seed may be sown in

PHALÆNOPSIS SCHILLERIANA.

PETUNIA (DOUBLE FRINGED).

PETUNIA (LARGE FLOWERING, SINGLE).

PHLOX DRUMMONDI (LARGE FLOWERING).

PHÆDRANASSA CHLORACEA.

PENTSTEMON.

PHLEUM PRATENSE (TIMOTHY GRASS).

PHLOX DRUMMONDI (DOUBLE WHITE).

the green-house or in a hot-bed, and transplanted into the border. If the soil is rich, the plants should be set three feet apart each way. A peculiarity of the blotched varieties, particularly among the double ones, is that, when propagated from cuttings for a few years, the tendency is to run back to the dark color, all white markings being obliterated. Plants from cuttings will flower from June until after they have had several degrees of frost.

Peuce'danum. The old Greek name used by Hippocrates. Nat. Ord. *Umbelliferæ.*

A large genus of perennial, rarely annual, herbs, or shrubs, dispersed over the Northern Hemisphere, the Andes of tropical America, and tropical and southern Africa. The species are of little horticultural value. *Pastinaca sativa*, the Parsnip, is by some authors placed under this genus.

Peu'mus. Said to be the native name in Chili. Nat. Ord. *Monimiaceæ.*

P. Boldus, the only described species, is a small evergreen, fragrant green-house shrub, bearing its terminal cymes of white flowers in May. The leaves are used in medicine, the fruit is edible, and the bark is used in tanning.

Peyrou'sia. A synonym of *Lapeyrousia*, which see.

Pfa'ffia. Named in honor of *C. H. Pfaff*, Professor of Chemistry at Kiel, 1774–1852. Nat. Ord. *Amaranthaceæ.*

A genus of erect, slender, plant-stove herbs, natives of Brazil. *P. Gnaphaloides*, the only introduced species, has white flowers, borne in dense spikes or heads. It is seldom met with in cultivation. Syn. *Celosia.*

Pha'ca. Bastard Vetch. From *phago*, to eat; a name adopted by Dioscorides. Nat. Ord. *Leguminosæ.*

A genus of showy, hardy, herbaceous, perennial plants, suitable for the front of shrubbery borders. Their flowers are of many shades of white, yellow, rose, or purple. The species are common throughout the States. This genus is now included by Bentham and Hooker under *Astragalus.*

Phace'lia. From *phakelos*, a bundle; in reference to the disposition of the flowers. Nat. Ord. *Hydrophyllaceæ.*

Very curious plants, which produce their flowers in one-sided fascicles, which unroll themselves slowly The flowers are rather pretty in themselves, but are half-hidden by their bracts and coarse-growing leaves. Some of the species are perennials, and others biennial or annual. The Californian species are annuals with blue flowers, but the South American kinds are biennials or perennials with pink flowers. Syn. *Cosmanthus.*

Phædrana'ssa. Queen Lily. From *phaidros*, gay, and *anassa*, queen. Nat. Ord. *Amaryllidaceæ.*

A small genus of bulbs, natives of Peru and Quito. They are found at an elevation of 9,000 feet above the sea, growing among the rocks, where there is not, seemingly, sufficient earth to sustain vegetable life. They are handsome, though not very showy plants. The flowers are about two inches long, in the form of a slender tube, of a light pea-green color, tipped with pink. The bulbs require a long season of rest after flowering, which is

usually in winter. They are easily grown in a cool green-house with the most ordinary care, and are increased by offsets. Introduced in 1844.

Phænoco'ma. From *phaino*, to shine, and *kome*, hair; referring to the color and nature of the involucre. Nat. Ord. *Compositæ.*

P. prolifera, the only species, is an exceedingly handsome, small, hard-wooded, evergreen shrub, which has a most interesting and peculiar hoary appearance at all seasons of the year. The plant commences to produce its bright pink, everlasting blossoms when in a small state, and remains in full beauty for nearly three months. It is a great favorite in Europe in all collections of hard-wooded plants, but, though many attempts have been made, we are not aware that it has been successfully imported to this country. It is a native of the Cape of Good Hope, and was introduced in 1789. Syn. *Elichrysum* and *Xeranthemum proliferum.*

Phæno'gamous. A term applied to such plants as are visibly furnished with sexual organs.

Phænospe'rma. From *phaino*, to shine, and *sperma*, a seed; alluding to the glistening seeds. Nat. Ord. *Graminaceæ.*

P. globosum, introduced from China in 1874, is the only described species. It is a tall, hardy, ornamental grass, easily increased by seeds sown in spring.

Phai'us. From *phaios*, shining; in allusion to the beauty of the original species. Nat. Ord. *Orchidaceæ.*

An interesting genus of Orchids, generally terrestrial natives of tropical Africa, Australia, the Pacific Islands, China and Japan. The species are free-flowering and are of easy management. They thrive best in a compost of turfy loam, leaf-mould and well rotted cow dung; plenty of heat and moisture are essential during the growing season, but in winter, or when at rest, they should be kept in a low temperature, such as that of the green-house, and while there should be nearly dry. In early spring re-pot them, and replace them in the hot-house, where they soon grow and ultimately flower. *P. Wallichii*, *P. Bensonæ* (syn. *Thunia*), *P. albus* (syn. *Thunia*) and *P. grandifolius*, are all desirable species, and should be in every collection. The latter is often grown under the name of *Bletia Tankervilliæ.* See Orchids.

Phalæno'psis. Moth Orchid. Sometimes called the East Indian Butterfly Orchid. From *phalaina*, a moth, and *opsis*, like; in allusion to the appearance of the flowers, which bear a striking resemblance to that insect; whence the common name. Nat. Ord. *Orchidaceæ.*

The various species of *Phalænopsis* are prized by growers as among the most beautiful of cultivated Orchids. The flowers, which are nearly circular in outline and about two inches and a half in diameter, vary from pure white to a beautiful rose-color, the central portion being marked with delicate streaks of crimson; the sepals and petals are thick and leathery, and, as the name implies, a fancied resemblance may be traced between the flowers of this plant and a large white moth. In culture the species requires a very high temperature; it should be grown in the hottest

part of the hot-house, with an abundant supply of moisture, especially in the form of vapor, while in an active state; but at other times the quantity of each should be moderately reduced. In summer, when the plant is growing, the thermometer should range between 70° and 90°, when it will grow rapidly, and consequently flower in perfection. It may be regarded as a very liberal bloomer. The genus consists of over twenty species, a number of which are of recent introduction. They are all natives of the islands of the Indian Archipelago, and the eastern provinces of India, and were first introduced in 1836. *P. amabilis*, *P. Esmeralda*, *P. Luddemannia*, *P. Schilleriana*, and *P. Stuartiana*, are well known and superior species. See Orchids.

Phala'ngium. A synonym of *Anthericum*, St. Bruno's Lily.

Pha'laris. Canary Grass. From *phalaros*, shining; referring to the shining seeds. Nat. Ord. *Graminaceæ*.

A small genus of Grasses, mostly natives of Central Asia. *P. Canariensis* produces the Canary seed of commerce. Gardener's Garters is a beautiful, variegated variety of *P. arundinacea* very common in English gardens, and has been long introduced here. It is an excellent plant for shrubberies and is propagated by division.

Phale'ria. From *phalaros*, shining white; alluding to the color of the flowers. Nat. Ord. *Thymeleaceæ*.

A genus of green-house trees or shrubs, natives of Australia, the Malayan Archipelago and Ceylon. *P. laurifolia*, the only species in cultivation, has beautiful white flowers, remarkable for their delicious Daphne-like fragrance. It was introduced from Ceylon in 1869, and is propagated by seeds or cuttings.

Phaloca'llis. From *phalos*, a cone, and *kallos*, beautiful; beautifully cone-crested. Nat. Ord. *Iridaceæ*.

P. plumbea. the only known species, is a half-hardy Mexican bulb, producing singular lead colored flowers, tinged with yellow in the centre, about three inches across, lasting only a few hours. They expand before sunrise and close before noon. This was formerly included in the genus *Cypella*, but was separated by Dean Herbert. It requires the same treatment and care as the *Tigridia*, and is increased by offsets. Introduced in 1837.

Phanerogamous. The same as Phænogamous, which see.

Pharbi'tis. One of the divisions of the genus *Ipomœa*.

Pha'rus. From *pharos*, a covering; the leaves are used for thatching and other purposes. Nat. Ord. *Graminaceæ*.

A genus of ornamental grasses natives of tropical America, from Brazil to Mexico, and Florida. *P. latifolius*, introduced from Jamaica in 1796, is a showy species requiring the same treatment as the stove species of *Bambusa*. A finely variegated form, *P. l. vittatus*, the foliage banded with white and flushed with rose, is in cultivation.

Pha'seolus. Kidney Bean. From *phaselus*, a little boat; fancied resemblance of the pods. Nat. Ord. *Leguminosæ*.

This genus contains a few ornamental plants, the remainder being agricultural or

culinary vegetables. Of the former, *P. Caracalla* is the most remarkable, on account of its singularly twisted vexillum and keel, the appearance of which has induced the popular name, Snail Flower. It is a climber and may be grown out of doors in summer and in the green-house in winter. It is propagated by cuttings and from seed. The seed should be sown in spring in the green-house, with a slight bottom heat, and afterwards the plants may be placed in the borders of the house where they are to bloom, or they may be grown in pots. Its flowers are bluish lilac, and are valued by florists for their delicious fragrance and for their resemblance to Orchids. There are several other ornamental green-house kinds requiring the same treatment. *P. lunatus* is the origin of the well known Lima and Sieva pole Beans. A new dwarf variety of the latter, "Henderson's Bush Lima," has been lately introduced (1889), and will prove most acceptable to many. It grows about eighteen inches in height (thus doing away with the unsightly bean poles in the garden) and produces enormous crops that can be gathered as easily as the common garden Bush Beans. It is at least two weeks earlier than any of the climbing sorts; the beans are of the size of the Sieva or Small Lima, and of that delicious quality that has made the Southern Limas so famous. Like all Limas it is very tender and should not be planted until end of May in the latitude of New York. South of Richmond, however, two crops a year may be readily obtained, the first crop ripening in time to allow of a second planting for the fall months.

P. multiflorus, the common Scarlet Runner of our gardens, is a native of Mexico and South America. There is a variety with white flowers. They are very showy when in flower, independent of their value as "String Beans." *P. vulgaris*, is our common Kidney or String-Bean, the origin of which is very uncertain.

Pheasant's Eye. A common name for *Adonis æstivalis*, *A. autumnalis;* also for *Dianthus plumarius*.

Pheba'lium. From *Phibale*, a myrtle; alluding to the appearance of the species. Nat. Ord. *Rutaceæ*.

A genus of nearly thirty species of green-house shrubs, natives of Australia and New Zealand. *P. Billardieri*, *P. squamulosum*, and one or two other species are in cultivation and are showy ornamental plants, growing freely in a compost of sandy peat and loam, and are increased by cuttings of the young wood.

Phego'pteris. A genus of Ferns, now included under *Polypodium*.

Phe'llodendron. *P. amurense*, is a small hardy tree from northeastern Asia, commonly called Chinese Cork Tree. It is a medium sized tree, pyramidal in form, and in general appearance not unlike the Ailantus. Its foliage is bright red in autumn, and remains very late on the tree.

Philabe'rtia. Named in honor of *J. C. Philibert*, author of some works on elementary botany. Nat. Ord. *Asclepiadaceæ*.

A genus of interesting climbing shrubby plants, natives of tropical and sub-tropical America. *P. grandiflora*, introduced from Buenos Ayres in 1836, has yellow and white

flowers, and is an interesting plant for the green-house or for planting out in summer.

Philadelphia'ceæ. A natural order now included under *Saxifragaceæ.*

Philade'lphus. Syringa or Mock Orange. An ancient name applied by Linnæus for no obvious reason. Nat. Ord. *Saxifragaceæ.*

A genus of about twelve species of ornamental shrubs, natives of central Europe and North America, Japan, and the Himalayan mountains, the flowers of which smell like those of the orange, and the leaves taste like Cucumbers. It is rather remarkable that one of the English names of these plants is Syringa, which is the botanical name of the Lilac, to which they have not the slightest affinity. There are many species, some of which have very large and handsome flowers, and some bear flowers without any fragrance. They are all quite hardy, and may be propagated by seeds, layers, cuttings, or division. The species are common in the mountains of Virginia and southward.

Philage'ria Veitchii. A combination of parts of the generic names of the two parents. Nat. Ord. *Liliaceæ.*

A hybrid between *Lapageria rosea* and *Philesia Buxifolia*, raised by the Messrs. Veitch, of England. See *Philesia.*

Phile'sia. From *philesios*, lovely. Nat. Ord. *Liliaceæ.*

P. Buxifolia is the only species of this genus. It is a dwarf shrub, native of the extreme southern part of South America, being found from Valdivia to the Straits of Magellan. It is an evergreen with small leaves, and large, bell-shaped, drooping flowers, of a beautiful bright red color. It is allied to *Lapageria rosea*, from the same region. Messrs. Jas. Veitch & Son, of Chelsea, Eng., succeeded in raising a hybrid between the two plants, which has been named *Philageria Veitchii.* It is proper to state that the plant is inferior, in point of beauty, to either parent. We do not know of its introduction to this country. It would do well out of doors in the Southern States, or in the green-house, north.

Philesia'ceæ. A natural order, now included under *Liliaceæ.*

Philly'rea. Jasmine Box, Mock Privet. From *Philyra*, the old Greek name used by Theophrastus, for the Privet. Nat. Ord. *Oleaceæ.*

A small genus of ornamental, compact-growing, hardy, evergreen shrubs, natives of the Mediterranean region and the Orient. *P. decora*, better known under the name of *P. Vilmoriniana*, and *P. laurifolia*, the most hardy of the genus, is a strikingly handsome shrub, with bright-green, coriaceous leaves and axillary clusters of white flowers, which are followed in the autumn by Olive-shaped, reddish-purple fruit. It is a late introduction (1885) from the shores of the Black Sea, and in common with the rest of the genus, is most valuable for its adaptation to sea-side planting, and it is specially recommended for planting in cities, as smoke and dust do not affect it seriously.

Philode'ndron. From *phileo*, to love, and *dendron*, a tree; referring to the habit of the plants of this genus to overrun trees in the South American forests. Nat. Ord. *Aroideæ.*

A singular genus of South American tropical plants, mostly with scrambling stems, which attach themselves to the trunks of trees, whence the name of the genus. They are all green-house evergreen perennials, with large, irregular, singular leaves, and showy flowers, some of which are pure white, others white and bright rose. They were introduced in 1835, and are propagated by cuttings of the side shoots, and from seeds. See *Monstera.*

Phinæ'a. An Anagram of *Niphæa*, to which this genus is closely allied. A genus of *Gesneraceæ*, comprising a few species of dwarf, villous stove-plants, with the habit of *Niphæa* (under which they have until recently been included), natives of Columbia. The flowers are white or pale lilac; borne on axillary, umbellate peduncles. Introduced in 1845.

Phlebo'dium. From *phleps*, a vein. Nat. Ord. *Polypodiaceæ.*

A genus of net-veined Ferns, separated from *Polypodium. P. aureum*, typical of the genus, is a bold, glaucous-tinted Fern, with strong, rhizomes, which run upon the surface. It is a handsome species, and will grow luxuriantly in a cool green-house. It is increased by division or from spores. The species have long been under cultivation.

Phle'um. Supposed to be the Greek name for *Typha.* Nat. Ord. *Graminaceæ.*

A small genus of grasses. *P. pratense* is the well-known Timothy, or Herds Grass, of New England; it is also known as Cat's-tail Grass.

Phlogaca'nthus. From *phlox, phlogos*, flame, and *acanthus*, the type of this family; in allusion to the long spike of yellow or flame-colored flowers. Nat. Ord. *Acanthaceæ.*

A genus of East Indian green-house evergreen shrubs, allied to *Justicia*, and from which genus a few species have been separated. They are all ornamental winter-blooming plants, with bright orange or yellow flowers. They are increased in the same manner as the *Justicia*, and require the same general treatment.

Phlo'mis. Jerusalem Sage. The old Greek name used by Dioscorides. Nat. Ord. *Labiatæ.*

A genus of herbaceous perennial, and shrubby plants, ranking amongst the finest of hardy plants belonging to the Sage family. There are about a dozen species and varieties of the genus in cultivation, and amongst them a great diversity of size and habit. Some, such as *P. fruticosa*, are shrubs, others are noble herbaceous plants, while others, again, such as *P. Armeniaca*, are sufficiently alpine in character to allow of their being grown in the rock-garden. They are natives principally of the mountainous regions of temperate Asia and southern Europe; the shrubby species are increased by seeds or cuttings, and the herbaceous kinds by division. The most desirable of the shrubby species is *P. fruticosa*, with rich yellow flowers, very attractive during June, July and August. Of the herbaceous kinds the best is *P. Herba-venti*, rich purplish violet, *P. purpurea*, purple, *P. tuberosa*, purple, and *P. Russeliana*, and *P. Samia*, with yellow flowers.

Phoraden'dron. From *phor*, a thief, and *dendron*, a tree; because these plants steal their

food from the trees they grow upon. Nat. Ord. *Loranthaceæ*.

A genus of shrubby plants with coriaceous greenish foliage and small, white, pulpy, one-seeded berries. *P. flavescens*, the American Mistletoe, found parasitic on various deciduous-leaved trees from New Jersey to Illinois southward and westward, has in many instances proved destructive to the forest trees upon which it fastens itself, more especially to the Elms, Hickories, and Wild Cherries. Though not so ornamental as the English Mistletoe, it is largely used as a substitute for it during the holidays.

Phlox. From *phlox*, a flame; in reference to the brilliancy of the flowers. Nat. Ord. *Polemoniaceæ*.

This extensive and interesting genus is exclusively North American, and contains many of our most valuable hardy herbaceous perennials, and one invaluable hardy annual. What are commonly termed Perennial Phloxes are seedlings, varieties from *P. paniculata*, which is common from Pennsylvania to Illinois and southward. Of this species there are several varieties, all of the same general character, producing immense terminal clusters of white, pink, purple, and crimson flowers. From this species and from *P. maculata*, a lower growing species, common in the Middle and Western States, have originated the many rare and beautiful varieties that are now attracting such universal attention. The hybridizing of this class has chiefly been done by European florists; a pleasant and profitable work that should not have passed out of our own hands, and would not but for the too common error, that plants, as well as all other commodities, to be truly valuable, must be stamped with a foreign seal. It is claimed by some of the foreign horticulturists that the finer hybrids are crosses between the annual and perennial species, and the brilliant color so characteristic of them gives some credence to the assertion. Many of the species have long been cultivated, and regarded as the most valuable plants for the border. A few of the more valuable are worthy of special mention. *P. subulata*, Moss Pink or Ground Pink, is a beautiful dwarf-growing species, rarely exceeding six inches in height, and growing in dense tufts, and producing its pink, purple, or white flowers, which usually have a dark centre, in great profusion in early spring. This species is very common from New York to Michigan and southward. *P. reptans*, or *stolonifera*, is another dwarf species, of a rambling habit, with neat foliage and numerous clusters of bright crimson flowers. It is one of our most showy early spring flowering plants, blooming early in May. The flowers are nearly as large as the late, tall-growing species. *P. divaricata*, produces bluish-lilac flowers from April to June, and grows about the same height as the former species. This species is found in moist, rocky woods in the Middle States, north and west. *P. pilosa* grows about one foot high, and produces its lovely pink flowers in May and June. *P. Drummondii*, the only annual species, is a native of Texas, where it was discovered in 1835 by Mr. Drummond, a botanical collector sent out by the Glasgow (Scotland) Botanical Society. The seeds of this were sent home, and soon after the discoverer fell a victim to

the fever in Cuba, and died. For this reason Sir W. J. Hooker named the plant *Phlox Drummondii*, that it might "serve as a frequent memento of its unfortunate discoverer." There can be no stronger proof of the value and beauty of this species than the extent to which it is grown. Each year new varieties are added to the list, and, thus far, each year shows a marked improvement over the past, both in size and color of the flower, and in their extraordinary markings and variations. The varieties now include white, pink, rose, purple, and scarlet colors, and a near approach to yellow. Some of the scarlets have pure white eyes, and many of the others have the same distinctive marking. The only treatment required for this species is to sow the seed in early spring, where the plants are wanted to grow; and for perfection of flower the plants should be thinned out to one foot apart each way. They may also be started in the green-house or in a hot-bed, and pricked out in pots and boxes, and earlier flowers thus secured. The perennial species are increased by cuttings or by division of roots in spring. They should in no case be allowed to stand undivided more than three years, and they produce larger and finer flowers if separated every spring.

Phœniceus. Deep red, with an admixture of scarlet or carmine.

Phœnicopho'rium. From *Phœnix*, date, and *phoreo*, to bear. Nat. Ord. *Palmaceæ*.

A genus of rare and beautiful Palms, natives of the Seychelles Islands. *P. Seychellarum*, the only representative of the genus, was formerly called *Stevensonia grandifolia*. It is a stemless species, from whose base spring numerous leaves with copper-colored stalks studded with black spines. The blade of the leaf is wedge-shaped, and of a bronzy hue. The young leaves are of a rich cinnamon-brown color. This Palm is now cultivated for decorative purposes, and is one of the handsomest and most admired plants for that purpose. Young plants are obtained from seed.

Phœ'nix. Date Palm. The Greek name of the Date. Nat. Ord. *Palmaceæ*.

This genus, though not extensive, is one of the most interesting of the order. The species are chiefly confined to northern Africa and tropical Asia. Some of the species are dwarf-growing, but they mostly attain the height of from fifty to sixty feet. "The Date Palm, *P. dactylifera*, is cultivated in immense quantities all over the northern parts of Africa, and more sparingly in western Asia and southern Europe; and in some of these countries its fruit, though only known by us as a preserved fruit, affords the principal food of a large proportion of the inhabitants, and likewise of the various domestic animals, dogs, horses, and camels being alike partial to it. The tree usually grows about sixty or eighty feet high, and lives to a great age, trees of from one to two hundred years old continuing to produce their annual crop of Dates. The fruit, however, is not the only valuable part of this widely dispersed tree; for, as with the Cocoanut tree, nearly every part is applied to some useful purpose. The huts of the poorer classes are entirely constructed of its leaves; the fibre surrounding

the bases of their stalks is used for making ropes and coarse cloth, the stalks themselves for crates, baskets, brooms, walking-sticks, etc., and the wood for building substantial houses; the heart of the young leaves is eaten as a vegetable; the sap affords an intoxicating beverage, though to obtain it the tree is destroyed; and even the hard and apparently useless pits or seeds are ground into food for camels." This tree is very interesting to botanists, because it was the first that drew their attention to the sexes of plants. It is a dicœcious tree, that is, the male flowers are on one plant and the female, or fruiting ones, on another. The male flowers are considerably larger than the female; and the latter, instead of stamens, have in the centre the rudiments of the Dates, about the size of small Peas. The two distinct sexes of the Date tree appear to have been known from the remotest antiquity, as they are noticed by all the ancients who describe the tree. It is not a little remarkable that there is a difference in the fructification of the wild Date and the cultivated, though both are precisely the same species. Wild Dates impregnate themselves, but the cultivated ones do not without the assistance of art. Theophrastus and Pliny mention this fact; and in every plantation of Dates one part of the labor of the cultivator consists in collecting the flowers of the male Date, climbing to the top of the female with them, and dispersing the pollen on the germs of the Dates. So essential is this operation, that though the male and female trees are grown in the same plantation, the crop fails if it be not performed. These trees do not succeed well where the mean temperature falls below 80°; hence, they require the warmest of our hot-houses. Young plants may be grown from the seeds taken from the Dates sold in the fruit stores.

Pholido'ta. Rattlesnake Orchid. From *pholis*, a scale, and *ous, otos*, an ear; flowers arranged like an ear of wheat, with scaly bracts, as the tail of a rattlesnake. Nat. Ord. *Orchidaceæ.*

A small genus of East Indian epiphytal Orchids, of easy culture, mainly requiring to be grown on blocks of wood or cork, in a warm, moist house. They must have frequent waterings when growing. Flowers white, or white and brown, produced in imbricated and two-ranked drooping flower spikes. Propagated by division.

Pho'rmium. Flax Lily, or New Zealand Flax. From *phormos*, a basket; referring to the use made of the plant in its native country. Nat. Ord. *Liliaceæ.*

P. tenax is a native of New Zealand, where it is extensively used by the natives instead of Flax. This plant is handsome, has stiff, sword-shaped leaves, and orange-colored flowers, produced on strong spikes, alternately branched, and growing from ten to fifteen feet above the leaves, making it an exceedingly handsome and curious plant for green-house culture. *P. tenax variegata*, more recently introduced, is a very beautiful variegated-leaved variety, which makes a magnificent plant for lawn decoration, or for the green-house and conservatory. It requires a light rich soil, and is propagated by division. Introduced in 1798. *P. Cookianum* (syn. *P. Colensoi*), of which there is also a beautifully variegated variety is like the above only neater and smaller in all its parts. Introduced in 1868.

Photi'nia. From *photeinos*, shining; in reference to the leaves. Nat. Ord. *Rosaceæ.*

P. serrulata, the Chinese Hawthorn, is a very beautiful evergreen shrub or low tree, formerly called *Cratægus glabra.* It is nearly hardy, but thrives best when trained against a wall in a sheltered situation. The plants are propagated sometimes by cuttings of the ripened wood, but more frequently by grafting or inarching on some of the hardy kinds of Cratægus. *P. Japonica*, the Japan Medlar, Japan Quince, or Loquat (better known in cultivation as *Eriobotrya Japonica*), bears showy white flowers in pendulous racemes, succeeded by large bunches of pale, orange-red, downy, edible fruit. The few species that constitute this genus are natives of northern India, China, and Japan, with one species from California.

Phragmi'tes. Reed. From *phragmos*, a hedge; forming hedges. Nat. Ord. *Graminaceæ.*

P. communis, the only species, is a tall-growing, reed-like plant, common in the swamps and marshes on the south side of Long Island, and in New Jersey, and extending to Florida. The plumes are gathered in great quantities in the fall, and used with ornamental grasses for dried bouquets and decorations.

Phry'ma. Lop-seed. A Linnean name of unknown meaning. *P. Leptostachys*, the only species, grows two to three feet high, with purplish or pale rose-colored flowers. It flowers in July, and is common in woods and copses.

Phyce'lla. A diminutive of *phykos*, red Alkanet; alluding to the color of the flowers. Nat. Ord. *Amaryllidaceæ.*

A small genus of half-hardy bulbous plants, from the mountain regions of Mexico and South America. The several species have the same general character, the flowers being red or scarlet, marked with yellow, produced in early summer. They should be planted as early in spring as possible, in light, well-drained soil. After flowering, and as soon as they show signs of ripening, take up and store in the same manner as Hyacinths. They were introduced in 1825, and may be increased by offsets. Now included under *Hippeastrum* by some botanists.

Phyge'lius. Cape Fig-wort. From *phyga*, flight, and *helios*, the sun; said to love shade. Nat. Ord. *Scrophulariaceæ.*

N. capensis, the only species yet introduced, and a close ally of the Pentstemon, grows from eighteen to twenty-four inches high, and produces late in autumn tubular chocolate-crimson flowers in branching panicles. It was introduced in 1850, and may be increased by cuttings or by seeds.

Phy'lica. From *phyllikos*, leafy; in allusion to the abundant evergreen foliage. Nat. Ord. *Rhamnaceæ.*

Pretty little heath-like plants, natives of the Cape of Good Hope, with narrow leaves, and little terminal heads of fragrant white flowers, which begin to appear in autumn, and continue during winter and early spring.

They are generally grown in a green-house, and require the same treatment as the Cape Heaths. *P. ericoides*, the best known species, has been thoroughly naturalized, and covers large tracts of land about Lisbon, Portugal.

Phylla'gathis. From *phyllon*, a leaf, and *agatheos*, divine; referring to the beauty of the foliage. Nat. Ord. *Melastomaceæ*.

P. rotundifolia is grown chiefly for its large, beautiful leaves, which are a rich, glossy, metallic green on the upper side, the under being bright red in color, with very prominent ribs. It was introduced from the Malayan Peninsula, and requires a moist, warm atmosphere to grow it well. It is propagated by leaf-cuttings.

Phylla'nthus. From *phyllon*, a leaf, and *anthos*, a flower; the flowers are produced on the edges of the leaves. Nat. Ord. *Euphorbiaceæ*.

A large and very interesting genus of tropical plants. The species include low, creeping annuals, and moderate-sized trees. They are remarkable for the neatness of the foliage and general aspect. Several species are frequently cultivated on account of the pretty, and at the same time, singular appearance of its leafless, leaf-like branches, covered over at the edges with multitudes of pink flowers. *P. nivosus*, and *P. roseo-pictus*, are very desirable shrubs for the stove-house; when well grown they have the appearance of a sheet of snow. They were introduced from the South-Sea Islands in 1873, and are propagated by root cuttings, or by cuttings of the ripened wood.

Phylla'rthron. From *phyllon*, a leaf, and *arthros*, a joint; leaves supposed to be joined, or articulated on the leaf-stalks. Nat. Ord. *Bignoniaceæ*.

A small genus of shrubs or small trees, confined to the islands of eastern Africa, remarkable for their peculiar jointed leaves. The flowers are pink, and appear in terminal and axillary racemes, producing a fruit much used in jellies. They require the same treatment as the *Bignonias*, to which they are allied. Syn. *Arthrophyllum*.

Phy'llis. From *phyllon*, a leaf; the beauty of the species is in its leaves. Nat. Ord. *Rubiaceæ*.

P. nobla, Bastard Hare's-ears, is an ornamental shrub growing from two to three feet high, and producing axillary corymbs of green flowers in abundance. It is a native of the Canary Islands and Madeira, and is propagated by cuttings.

Phylloca'ctus. From *phyllon*, a leaf, and *Cactus*. Nat. Ord. *Cactaceæ*.

Several species and varieties of this genus of *Cactaceæ* are cultivated in hot-houses and green-houses for the sake of their fine white or crimson flowers, which are among the largest and most showy of the order. Some confusion exists in their nomenclature, owing to many of the species having formerly been referred to the genera *Epiphyllum*, and *Cereus*. They are, however, distinguished from the latter by their curious, flat, broad, leaf-like branches; and from the former by their flowers being produced from the notches or indentures along the edges of the branches, instead of at the end, and having small, sepal-like segments scattered wide apart on the tube, and the numerous long petals variously expanded, so as to form a rose-like funnel, or salver-shaped corolla, with the stamens attached to the orifice of the tube, the outer ones being longer than the inner. The principal species described by botanists are found in Mexico, Central America, and Brazil. *P. Ackermanni*, a native of Mexico, has flowers measuring as much as seven inches across, and of a rich scarlet color, like those of some varieties of *Cereus speciosissimus*, with broad, very sharp-pointed, slightly waved petals. Its stems are rounded at the base, and bear little tufts of short bristles, and its flat branches are from two to two and a half inches broad, and waved or deeply dented along the margin. *P. anguliger* is a West Mexican species, and is remarkable for having its flat branches deeply and sharply lobed, so as to resemble pinnately cut leaves, the lobes almost forming right-angled triangles; its flowers, which are large and fragrant, have brownish petals, and pure white inner ones. The branches and stems of *P. Hookeri* are flat, and deeply crenated; they grow from two to three feet high, and bear white, agreeably fragrant flowers on the margins of the stems. *P. Phyllanthus*, often erroneously called the Night-blooming Cereus, bears large, creamy-white flowers, nine to twelve inches in length, opening at night and exhaling a peculiar odor. *P. Phyllanthoides*, resembling the latter, has much smaller flowers, the petals being colored rose and white in irregular streaks. It is a very beautiful species, and one of the most floriferous of the family. Many other forms are well worthy of cultivation; all the species are readily increased by cuttings, which should be allowed to dry a day or two after being taken off.

Phyllocla'dus. From *phyllon*, a leaf, and *klados*, a branch; alluding to the phyllodia which are characteristic. A small genus of *Coniferæ*, consisting of trees, natives of Australia, New Zealand, and Borneo. The characters of the foliage and fruit serve to distinguish this genus from its near ally *Dacrydium*. *P. rhomboidalis*, the Celery-topped Pine, is in cultivation as an ornamental tree, as is also *P. trichomanoides*, the bark of which yields a red dye.

Phyllo'des. Flattened leaf-like petioles (without blades). A large number of the Australian Acacias bear no true leaves, but Phillodes, which perform the same functions.

Phyllo'doce. From *phyllon*, a leaf, and *dokein*, to shine; in allusion to the shining leaves. Nat. Ord. *Ericaceæ*.

A genus of small heath-like shrubs inhabiting the mountainous regions of Europe, Asia, and North America. Flowers, blue, pink, or purple, usually nodding on solitary or umbelled peduncles at the summit of the branches. Our native species, *P. taxifolia*, is found on the alpine summits of the mountains of New Hampshire, Maine, and northward.

Phyllo'ma. From *phyllon*, a leaf, and *loma*, a fringe; in reference to the colored edges of the leaves of the first discovered species. Nat. Ord. *Liliaceæ*.

A small genus of green-house succulent plants, allied to *Aloe*. They grow well in sandy loam, and are readily increased by suckers. Syn. *Lomatophyllum*.

Phyllo'stachys. From *phyllon*, a leaf, and *stachys*, a spike; alluding to the branchlets being furnished with leaves. Nat. Ord. *Graminaceæ*.

A genus of tree-like Chinese and Japanese grasses, with half-round stems, prominent lobes and leaf-bearing branchlets in fascicles or tufts. *P. Nigra*, produces the Whangee Canes, which, "although slender, are nearly solid, and appear to be generally used for such purposes as require great strength and toughness. Chairs, pipe-stems, and walking-sticks are often seen in England made from the culms of this species." *P. bambusoides* grows from ten to twelve feet high, the yellow reed-like culms, being unarmed, very smooth above, and with very prominent nodes.

Phyllo'ta. From *phyllon*, a leaf, and *ous, otis*, an ear; referring to the shape of the leaves. Nat. Ord. *Leguminosæ*.

A genus of Australian shrubs, closely allied to *Dillwynia* and *Aotus*, and requiring the same general treatment. *P. Philicoides* with yellow flowers forming leafy heads or spikes is the only species in cultivation. Syns. *P. aspera, P. comosa*, and *P. squarrosa*.

Phyllotæ'nium. A genus of *Aroideæ*, established on a New Grenadian species, formerly called *Xanthosma*. It resembles the *Caladium*, but differs in its persistent leaves, acrid, milky juice, and the absence of rudimentary organs. *P. Lindeni* has large hastate-oblong, deep green leaves; the mid-rib and the numerous well defined veins of which are clear ivory white. It is a most showy variegated plant for the warm green-house. Introduced from New Grenada in 1871.

Phyllo'xera. See Insects.

Phy'llum. A sepal. In Greek compound, a leaf, as Diphyllous; two-leaved, Triphyllous, three-leaved, etc.

Phymato'des. A genus of Ferns, now included under *Polypodium*.

Phy'salis. Ground Cherry, Strawberry Tomato. From *physa*, a bladder; alluding to the inflated calyx. Nat. Ord. *Solanaceæ*.

A genus of American, principally Mexican plants, several species of which are in cultivation. *P. Alkekengi* is the Strawberry Tomato common in cultivated grounds and waste places, having become naturalized from Europe. *P. Peruviana edulis*, the Cape Gooseberry, a native of South America, is occasionally grown as a dessert fruit, some people liking its peculiar flavor.

Physia'nthus. From *physa*, a bladder, and *anthos*, a flower; alluding to the corolla being inflated at the base. Nat. Ord. *Asclepiadaceæ*.

A small genus of green-house climbing plants, natives of Brazil and Buenos Ayres. *P. albens* bears immense quantities of pure white, fragrant flowers, in axillary clusters, very much like a single Tuberose, which are much used in the formation of bouquets during the summer months. It is well adapted for covering trellises, or for any situation where a climber is required, and succeeds best in the warmest situation. It has large and handsome seed-vessels, which look like oval gourds, and which, when opened, are found to contain the seeds, enveloped in a quantity of fine, silky substance, which looks like the cocoons of silk-worms after the fine silk has been spun off. They are rapid growers, sometimes growing twenty feet in a summer. They require the protection of the green-house during winter. A wonderful peculiarity of this plant is its power to trap insects. For this reason Professor George Thurber has well named it "The Cruel Plant," and describes the trap contrivance thus: "The anthers are so placed that their spreading cells form a series of notches in a ring around the pistil. The insect, in putting its proboscis down for the honey, must pass it into one of these notches, and in attempting to withdraw it, the end is sure to get caught in a notch, boot-jack fashion, as it were, and the more the insect pulls, the more its trunk is drawn towards the point of the notch." Thus caught, the insect starves to death; hence, the well-deserved name of "Cruel Plant." It was introduced in 1830, and is propagated by cuttings or by seeds.

Physic-nut-tree. *Curcas* (*Jatropha*), *purgans*.

Physi'dium. A synonym for *Angelonia*.

Physochlai'na. From *physa*, a bladder, and *chlaina*, an outer garment; alluding to the inflated calyx. Nat. Ord. *Solanaceæ*.

A small genus of hardy, erect, herbaceous perennials, natives of Central Asia. The three introduced species produce their very elegant flowers early in the season and are therefore desirable plants for the herbaceous border. They thrive in any light garden soil, and are increased by seed or by division. Syn. *Hyoscyamus*.

Physoste'gia. From *physa*, a bladder, and *stege*, a covering; alluding to the calyx. Nat. Ord. *Labiatæ*.

A genus of hardy herbaceous perennials, natives of North and South America. *P. Virginiana, P. imbricata*, and *P. denticulata*, are the most desirable species, and produce white, pink, purple, and red flowers, in terminal, leafless clusters. They are nearly allied to *Dracocephalum*, and require the same treatment.

Physoste'lma. From *physa*, a bladder, and *stelma*, a girdle; alluding to the shape of corona scales. Nat. Ord. *Asclepiadiaceæ*.

A small genus of plant-stove, climbing, glabrous shrubs, natives of the Malayan Archipelago. *P. Wallichii*, the only species in cultivation, has green and yellow flowers with coriaceous, almost veinless leaves. It requires the same treatment as *Hoya*, to which genus it is closely allied.

Physosti'gma. Ordeal Bean of Old Calabar. From *physa*, a bladder, and *stigma;* the bearded style is terminated by a large, oblique hood, covering the stigma. Nat. Ord. *Leguminosæ*.

P. venenosum is a climbing plant, the seeds of which are extremely poisonous, and are employed by the natives of Old Calabar as an ordeal; persons suspected of witchcraft or other crime being compelled to eat them until they vomit or die—the former being regarded as a proof of innocence—the latter of guilt.

Physu'rus. From *physa*, a bladder, and *oura*, a tail. Nat. Ord. *Orchidaceæ*.

A small genus of lovely little Orchids, both epiphytal and terrestrial, natives of

South America. *P. pictus*, is one of the most delicately-beautiful objects which the researches of modern botanists have furnished to our collections. Its leaves are a rich, tender green, reticulated with numberless silvery-looking veins, of the most exquisite markings, having the appearance of a network of silver on a ground of bright green velvet. It requires the same treatment as *Anœctochilus*, to which it is nearly allied.

Phyte'lephas. Vegetable Ivory Nut. From *phyton*, a plant, and *elephas*, ivory; buttons and toys are made from the hard albumen of the nuts. Nat. Ord. *Palmaceæ*.

P. macrocarpa, the Ivory Plant of South America, is the representative of a curious genus closely allied to the Palms, and having their habit; but they differ from them in having an indefinite number of stamens, and on that account are regarded by some botanists as the type of a separate natural order, *Phytelephanteæ*. The separation, however, has not yet been made. There are two species, similar in all respects, except in the size of the fruit, and both inhabit the same locality. *P. macrocarpa*, the large-seeded species, is a native of the northern parts of South America, and was known to botanists long before the nuts had a commercial value. It inhabits damp localities, such as valleys and banks of rivers, and is found not only on the coast regions, as at Darien, but also on mountains rising 3,000 feet above the level of the sea. It is generally found in detached groves, seldom intermixed with other trees. The trunk is always pulled down, partly by its own weight, and partly by its aërial roots, which it possesses in common with the Pandanus, to which it is allied. It thus forms a creeping stem, which is frequently twenty feet long, but is seldom higher than six feet. The top is crowned with from twelve to twenty leaves, from twelve to eighteen feet long. The male and female flowers are on separate trees, and the trunk of the male plant is always more erect and taller than that of the female. The flowers are produced in axillary clusters, and emit a powerful perfume. The fruit, a collection of six or seven drupes, forms clusters, which are as large as a man's head, at first erect, but ultimately hanging down when the weight increases. A plant bears at one time from six to eight of these heads, each weighing, when ripe, about twenty-five pounds. Each drupe contains from six to nine seeds or nuts. The seed at first contains a clear, insipid fluid, with which travelers allay their thirst; afterward this liquor becomes milky and sweet. When matured, it is almost as hard as ivory. These nuts are gathered in large quantities by the natives, and sold to traders, who are allowed on shore only sufficiently long to make their purchases, and are compelled to return to their vessels at night.

Phyte'uma. Horned Rampion. Linnæus adopted this name from Dioscorides; meaning unknown. Nat. Ord. *Campanulaceæ*.

An extensive genus of hardy herbaceous plants, the majority of which are interesting aids in the embellishment of rock-work or similar places, where they speedily extend themselves. They are mostly natives of the temperate parts of Europe and Asia, and have long been under cultivation. Propagated by seeds or by division.

Phytola'cca. Poke Weed, or Scoke-berry. From *phyton*, a plant, and *lacca*, lac; the crimson color of the fruit. Nat. Ord. *Phytolaccaceæ*.

P. decandria, our common Virginia Poke Weed, is the type of the genus. At home it is a rank weed. In Portugal it is said to be cultivated for the berries, the juice of which is used to color Port wine. The root has medical qualities. The young shoots in spring are often used by country people as a substitute for Asparagus.

Phytolacca'ceæ. A natural order of undershrubs or herbs, with alternate, entire, often dotted leaves, natives of America, Asia, and Africa. There is frequently much acridity in the plants of this order, and some of them act as irritant emetics, and purgatives. The order which was long confounded with *Chenopodiaceæ*, contains twenty known genera, including *Phytolacca*, and *Rivinia*, and about eighty species.

Piassaba or Picaba Fiber. See *Leopoldinia*.

Pi'cea. Silver Fir. From *pix*, pitch; the trees produce abundance of resin. Nat. Ord. *Coniferæ*.

A genus of mostly hardy evergreen trees formerly included in the genus *Abies*. The difference in the genera is very slight, consisting only in the shape of their cones, and the bracts not falling away from the axis at maturity, as in *Abies*. As no two works on *Coniferæ* agree, and the genera *Abies* and *Picea*, are generally transposed, we follow the names generally accepted by nurserymen in this country and England. *P. pectinata*, the Silver Fir, has rich green foliage, silvery underneath. It is a vigorous grower and stands pruning well. *P. Cephalonica*, bush-like when young, but eventually pyramidal, is a beautiful species, and generally hardy. *P. firma*, the Japanese Silver Fir, is one of the most vigorous and hardy, and is a distinct and interesting species. *P. Nordmanniana*, introduced from the Crimea in 1848, is one of the most stately and symmetrical as well as effective of evergreen trees. It is of slow growth, with dark-green, massive foliage, silvery underneath; the contrast between its old and new growth being most charming. *P. Pichta*, the Siberian Silver Fir, has very dark green leaves, soft and rich to the touch. *P. Pinsapo*, is a very handsome densely-branched species, resembling *P. Cephalonica*, but not entirely hardy in this latitude. There are many other desirable species, such as, *P. Veitchii*, *P. nobilis*, *P. amabilis*, *P. pectinata compacta*, etc., for descriptions of which see nursery catalogues.

Piceus. Black, changing to brownish black.

Pickerel Weed. See *Pontederia*.

Picotee. One of the florist's varieties of *Dianthus Caryophyllus*. See *Dianthus*.

Picrorhi'za. From *pikros*, bitter, and *rhiza*, a root; in allusion to the bitterness of the root. Nat. Ord. *Scrophulariaceæ*.

P. Kurrova is a hardy perennial plant, a native of the Himalayas, the thick root of which is used in Hindoo medicine.

Pie'rcea. A synonym of *Rivinia*.

PHILODENDRON.

PHORMIUM TENAX VARIEGATUM.

PHŒNIX RUPICOLA.

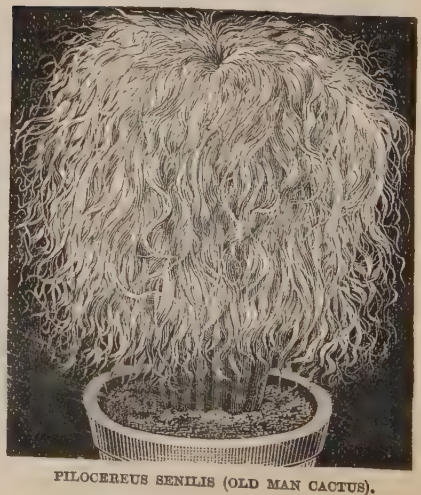
PHYLLANTHUS ROSEO-PICTUS.

PHŒNIX RECLINATA.

PINUS STROBUS (WHITE PINE).

PHYLLOCACTUS LATIFRONS.

PICEA PECTINATA (SILVER FIR).



PILOCEREUS SENILIS (OLD MAN CACTUS).

Pi'eris. A name applied to the Muses from their supposed abode at Pieria, in Thessaly. Nat. Ord. *Ericaceæ.*

A genus of low-growing trees or shrubs, natives of the Himalayas, Japan, and northwestern America. The flowers are white, rarely red, borne in terminal racemes very much resembling the *Andromeda*, from which genus they have been separated. *P. Japonica elegantissima*, is a very elegant shrub, its leaves being beautifully margined with white. Syn. *Andromeda Japonica variegata.*

Pigeon Berry. *Phytolacca decandra.*

Pigeon Pea. See *Cajanus Indicus.*

Pig-weed. The popular name of *Chenopodium album.*

Pig-nut. A common name for the fruit of a species of Hickory, *Carya porcina.*

Pi'lea. From *pileos*, a cap; alluding to the shape of one of the divisions of the perianth. Nat. Ord. *Urticaceæ.*

An extensive genus of annual or perennial herbaceous plants, most of which may be described as mere weeds. *P. microphylla*, known as the Artillery Plant (syn. *P. muscosa*), is a native of the West Indies and is a useful, low-growing, mossy-looking plant, remarkable for the manner in which it discharges its pollen grains. When the flowers are ready to expand the least moisture causes the calyx to expand, and the pollen is thrown out with great force to the distance of nearly a foot. By putting a plant when in flower quickly in a vessel of warm water, these discharges will be rapidly kept up for some minutes, a perfect representation of miniature artillery, both in sound and smoke. The plants are well adapted for baskets, stands, or rockeries, and are extensively used for massing with Echeverias and other plants used in "carpet bedding." *P. reticulata, P. herniarœfolia, P. serpyllifolia*, and other species, are used for hanging-baskets, vases, etc.; they all have the same peculiarities and are easily increased by cuttings.

Pileus. The name given to the broad expanded part in Mushrooms and allied groups of the larger Fungi.

Pili. Hairs.

Piliferous. Tipped with, or bearing hairs.

Pillwort. The common name of the genus *Pilularia.*

Piloca'rpus. From *pilos*, a cap, and *karpos*, a fruit; referring to the shape of the berries. Nat. Ord. *Rutaceæ.*

A genus of shrubby green-house plants, natives of tropical America and the West Indies. *P. pennatifolius*, has purple flowers in crowded racemes eighteen inches long; it is one of the plants which furnishes the Jaborandi of commerce. They are propagated by cuttings of the ripened wood.

Piloce'reus. From *pilos*, wool, and *Cereus;* alluding to the long hairs upon the spine cushions. Nat. Ord. *Cactaceæ.*

The well-known Old Man Cactus, and a few allied species, have been separated under this name from the genus *Cereus*, but, as in other genera of *Cactaceæ*, the distinguishing characters are scarcely of generic importance. All the species are natives of Mexico and tropical America. *P. senilis*, the Old Man Cactus, the one met in our green-houses, but by no means

common, is usually seen from one to two feet high, and rarely three, but in Mexico, its native country, it attains a height of from twenty to twenty-five feet, with a diameter of nine or ten inches, and its fluted character gives it somewhat the appearance of an architectural column. The stem is divided into thirty or forty narrow furrows, with corresponding ridges, which are furnished at very short distances with tufts of white spines, surrounded by numerous long, flexible white hairs, resembling the gray hairs of an old man's head; hence has arisen not only the common name of the plant, but also its scientific appellation. When young the stems are fleshy and succulent, but when they get old their tissue becomes filled with an extraordinary quantity of small sand-like grains, composed of oxalate of lime, not less than from sixty to eighty per cent. having been found in individual stems. This genus requires the same culture as other Cacti, and is increased in the same manner.

Pilo'gyne suavis. A very beautiful climbing plant belonging to the Nat. Ord. *Cucurbitaceæ.*

It is a rapid-growing plant, with small, glossy green leaves, rendering it desirable for covering verandas or trellises. It is also a splendid house plant. The flowers are yellowish-white, and quite fragrant. This plant was introduced into the United States about 1875 from South Africa, by way of Germany, and is easily increased by cuttings. It is described in "Nicholson's Dictionary" under the name of *Zehneria*, and the correct name is given as *Melothria punctata.*

Pilose. Covered with long, soft hairs.

Pilot-weed. *Silphium laciniatum.*

Pilula'ria. From *pilula*, a little ball or pill; alluding to the shape of the heads of the reproductive organs. Nat. Ord. *Marsileaceæ.*

A small genus of aquatic plants found in temperate Europe and Asia, Australia and North America. They are often cultivated in aquaria.

Pilu'mna. From *pilos* or *pileos*, a cap; shape of the flowers. Nat. Ord. *Orchidaceæ.*

A small genus of Peruvian epiphytal Orchids. They have medium-sized flowers, of a white, or greenish-white color, which are produced in spikes of from three to five. They are remarkable for their delicious fragrance. They succeed well in a cool house, and should be grown in leaf mould and sphagnum moss. They were introduced in 1843, and are increased by division.

Pime'lea. From *pimele*, fat; referring to the viscid matter on the leaves of some species. Nat. Ord. *Thymelaceæ.*

An extensive genus of green-house evergreen shrubs, natives of Australia, Tasmania and New Zealand. They make handsome plants in English green-houses, and produce many terminal clusters of white, rose, or yellow flowers of great beauty, but our hot, dry summers are not congenial to them. They were introduced in 1824, and are propagated by cuttings.

Pime'nta. Allspice Tree. From *pimento*, the Spanish name. Nat. Ord. *Myrtaceæ.*

P. vulgaris, the only species, is an extremely handsome tree, a native of South America and the West Indies, especially of the island

of Jamaica, whence the berries or Pimento of commerce are exported in large quantities. This tree grows to the height of about thirty feet, with a smooth brown trunk and shining green leaves, resembling those of the Bay; the branches coming out on all sides, the trees are clothed in the most luxuriant foliage. The great profusion of white flowers contrasts pleasingly with the dark green leaves, the whole forming an object of vegetable beauty rarely surpassed; while the rich perfume which the flowers exhale renders an assemblage of these trees one of the most delicious plantations of even a tropical clime. The Pimento tree grows spontaneously in many parts of Jamaica, but abounds more particularly on the northern side of the island, in elevated spots near the coast. When a new plantation is to be formed, no regular planting or sowing takes place. It is usual to appropriate a piece of land either in the neighborhood of a plantation already formed, or in a part of the woodlands where these trees are scattered in a native state. The land is then cleared of all wood except these trees, which are left standing, and the felled timber is allowed to remain, where it falls to decay. In the course of a year young Pimento plants are found springing up in all parts of the land. At the end of two years the land is thoroughly cleared, only those plants being left that promise a vigorous growth; these arrive at maturity in from five to seven years. Plantations are thus formed with apparently little trouble; this, however, can only be done in those parts where the tree is of spontaneous growth. This tree is purely a child of Nature, and seems to mock all the labors of man in his endeavors to extend or improve its growth; not one attempt in fifty to propagate the young plants or to raise them from the seed, in parts of the country where it is not found growing spontaneously, having succeeded. The berries have to be gathered very soon after the flowers fade; if left to ripen on the tree they lose their pungency, and become valueless. When picked they are spread out thinly on floors, exposed to the full heat of the sun, for about a week, or until fit for exportation.

Pime'nto. The dried berries of the West Indian *Eugenia Pimenta*, and *E. acris*.

Pimpernel. See *Anagallis*.

Pina'ceæ. A natural order now included under *Coniferæ*.

Pina'nga. A local Malayan name. Nat. Ord. *Palmaceæ*.

A genus of stove-house Palms, usually low and slender-stemmed, natives of India and the Malayan Archipelago. They are very ornamental plants, and are closely allied to *Seaforthia*, and *Areca*, under which genera some of the species are placed by botanists. *P. spectabilis*, is a very choice and beautiful species, the dark green leaves, mottled with light green, and the nerves prominently raised on the upper surface, the under surface having a light silvery appearance. *P. lepida*, is another elegant-growing Palm, the young leaves having a brown-crimson tint, gradually changing as the foliage matures.

Pincenecti'tia. Lindley says this is "a name under which some plants allied to *Cordyline*,

and *Dasylirion*, have been sent out by Belgian horticulturists. It is supposed to have arisen from the blunders of ignorant gardeners, who mistook the plant for a *Freycinetia*, but who wrote the name so badly that it was read as above." The species are described as a genus of *Liliaceæ*, under the name of *Beaucarnia*, which see.

Pi'nckneya. A genus of small trees, natives of the Southern States from Carolina to Florida, and belonging to the Nat. Ord. *Rubiaceæ*.

P. pubens, the Bitter-bark Tree, is quite a handsome tree, with red downy, purplish-spotted flowers, and large, downy, ovate leaves, rendered still more conspicuous by reason of the large pink bracts underneath the inflorescence.

Pincushion Flower. The genus *Scabiosa*.

Pine-apple. See *Ananassa*.

Pine-barren Beauty, or Little Pixie. *Pyxidanthera barbulata*.

Pine-tree. The popular name for *Pinus;* the name is also applied to several other genera.

Aleppo or Jerusalem. *Pinus Halepensis.*
Amboyna. *Damarra orientalis.*
Austrian. *Pinus Austriaca.*
Bhotan. *Pinus excelsa.*
Black. *Pinus Austriaca.*
Black, of New Zealand. *Podocarpus ferruginea*, and *P. spicata.*
Brazilian. *Araucaria Braziliensis.*
Calabrian. *Pinus Laricio.*
Californian Giant. *Pinus Lambertiana.*
Celery-leaved, of New Zealand. *Phyllocladus trichomanoides.*
Celery-leaved, of Tasmania. *Phyllocladus rhomboidalis.*
Chili. *Araucaria imbricata.*
Chinese. *Pinus Sinensis.*
Chinese Lace-bark. *Pinus Bungeana.*
Cowrie or Kauri. *Damarra Australis.*
Crimean. *Pinus Pallasiana.*
Cluster. *Pinus Pinaster.*
Cypress. *Frenella verrucosa.*
Frankincense. *Pinus Tæda.*
Georgia. *Pinus australis.*
Golden. *Pinus Kæmpferi.*
Hickory. *Pinus Balfouriana.*
Highland. *Pinus sylvestris*, var. *horizontalis.*
Hudson's Bay. *Pinus Banksiana.*
Italian Stone. *Pinus Pinea.*
Kauri or Cowrie. *Damarra Australis.*
King. *Abies Webbiana.*
Labrador or Banksian. *Pinus Banksiana.*
Loblolly. *Pinus Tæda.*
Mahogany. *Podocarpus Totara.*
Monterey. *Pinus insignis.*
Moreton Bay. *Araucaria Cunninghami.*
Mountain. *Pinus Monticola* and *P. pumila.*
Nepal. *Pinus Gerardiana.*
New Caledonian. *Araucaria Cookii*, and *A. Rulei.*
New Jersey Scrub. *Pinus inops.*
New Zealand. *Dacridium cupressinum.*
Norfolk Island. *Araucaria excelsa.*
Norway. *Abies excelsa.*
"Norway," of North America. *Pinus resinosa.*
Nut. *Pinus edulis* and *P. monophylla.*
Pitch. *Pinus rigida.*
Pitch, of Georgia. *Pinus australis.*
Red. *Pinus resinosa* and *abies rubra.*
Red, of New Zealand. *Dacrydium cupressinum.*
Screw. The genus *Pandanus.*

Screw, Australian. *Pandanus pedunculatus.*
Sea-side. *Pinus maritima.*
Siberian. *Pinus Cembra*, var. *Siberica.*
Snow or White Weymouth. *Pinus Strobus*, var. *nivea.*
South African. *Leucadendron argenteum.*
Southern. *Pinus australis.*
Stone. *Pinus Pinea.*
Stone, Swiss. *Pinus Cembra.*
Sugar. *Pinus Lambertiana.*
Table-mountain. *Pinus pungens.*
Umbrella. The genus *Sciadopitys.*
Virginian. *Pinus australis* (*P. palustris*).
Water. *Glyptostrobus heterophyllus.*
Wax. The genus *Damarra.*
Weymouth. *Pinus Strobus.*
White. *Pinus Strobus*, and *P. flexilis.*
Yellow. *Pinus australis*, *P. mitis*, and *P. ponderosa.*

Pine-weed. *Hypericum Sarothra.*

Pingui'cula. Butterwort. From *pinguis*, fat; referring to the greasiness of the leaves. Nat. Ord. *Lentibulaceæ.*

Curious and beautiful little plants, very difficult to keep in an artificial state, although some of them are indigenous. They are marsh plants, and refuse to exist out of their native position; but when seen in health, their beautiful white, yellow, lilac, or violet-colored flowers are the admiration of every beholder. *P. Vallisneriæfolia*, a native of the mountains of Spain, differs from all others of the genus in its clustered habit of growth, a number of crowns being often massed together in one clump. The flowers are large, and of a soft purple or pale lilac-purple, with conspicuous white or pale centres. It requires very free drainage, continuous moisture, and a humid atmosphere in cultivation. The native species are common from New York to Florida.

Pink. See *Dianthus.*

Pink-root. See *Spigelia.*

Pinnæ. The primary divisions of a pinnated leaf—its leaflets.

Pinnate. When simple leaflets are arranged on each side of a common petiole; a compound leaf.

Pinnatifid. A leaf deeply cut into segments nearly to the midrib.

Pinnules. The secondary divisions of a pinnate leaf.

Pi'nus. Pine Tree. From *pinos*, a Greek word used by Theophrastus, to designate a Pine tree; and some authors derive it from the Celtic *pin*, or *pyn*, a mountain or rock; alluding to the habitat of the tree. Nat. Ord. *Coniferæ.*

This genus is very extensive, and contains some of our most useful trees for economic purposes, besides a number of species of an ornamental character. The genus is confined solely to the northern hemisphere, and the more useful and gigantic to the United States. *Pinus australis* is the Yellow or Pitch Pine of the Southern States. This species seems to be especially assigned to dry, sandy soil, and it is found without interruption from Virginia to Florida, covering a tract of more than six hundred miles long from northeast to southwest, and more than one hundred miles broad from the sea toward the mountains of the Carolinas and Georgia. The average height of the trees is from sixty to seventy feet, with a diameter of from fifteen to eighteen inches. In Virginia, where this species first makes its appearance, it does not grow so large; but in Georgia and Florida it greatly exceeds these dimensions. Besides the valuable timber it affords, it also produces the pitch, tar, turpentine, and rosin of commerce. The leaves are about a foot long, of a beautiful brilliant green, and produced in bunches at the extremity of the branches. *P. inops* is the Jersey or Scrub Pine, a species that grows from fifteen to forty feet high, with a diameter of from six to fifteen inches; its habit is straggling and rough. Its only use is for fuel. *P. mitis*, Yellow Pine, is a fine tree, growing from fifty to sixty feet high, furnishing a fine-grained, lasting timber, which is especially used for flooring. Common from New Jersey to Wisconsin and southward. *P. pungens*, Table Mountain Pine, is a large tree, with short, compact, pale green leaves, and resembles the European Pines. Its cones are borne in large clusters, and remain upon the trees for many years. It is valuable as a timber tree. It is found upon the Blue Ridge in Virginia and southward. *P. rigida* is commonly known as Pitch Pine, and is common throughout the Middle and Northern States, frequently growing in swamps with the Red Cedar. It is a species of medium growth, and of but little value. *P. resinosa*, or Red Pine, commonly and improperly called Norway Pine, is found in most of the Northern States. It is a tall-growing, erect, symmetrical tree, with light-green leaves and short cones. The wood is dark, compact, and much esteemed for its durability. *P. edulis*, the Edible Pine, or "Nut Pine" of California and New Mexico, is an interesting species, growing from fifty to sixty feet high, producing great quantities of thin-shelled seeds, about the size of Peas, very nutritious, and of a pleasant flavor. *P. monophyllus* is another nut-bearing Pine, discovered by Col. Fremont in northern California, where it is extensively diffused over the mountains for a distance of about 600 miles. In some places it makes considerable growth, but is usually a small, slow-growing tree, of but little value for its timber. *P. tæda*, the Loblolly Pine of the Southern States, is a tree that grows from eighty to 100 feet high in the forests; in open grounds its trunk is low and branches spreading. This species immediately takes possession of and completely covers lands that are thrown out of cultivation. *P. Sabiniana*, Sabine's Pine, is one of the noblest California species, with a trunk 140 feet high, and is remarkable for its large, heavy cones, the scales of which are produced into long, recurved points. Its nut is large and edible. This tree occurs on the western slopes of the Sierra Nevada, and is one of the California White Pines. Its foliage is thin and of a very light green, which gives it a peculiar aspect, different from all the other Pines of that country. Its timber is very tough, and highly esteemed. *P. Lambertiana* is called Sugar Pine from the sweetness of its resinous juice, which exudes plentifully from this tree. This species was discovered by the intrepid Douglas, growing upon the most sterile, sandy plains, on the western slopes of the Rocky Mountains in California. He describes it as a tree of great

size, attaining a height of 200 feet, and a circumference of about sixty feet. Its branches are pendulous, and form an open, pyramidal head; the leaves are from four to five inches long; the cones pendulous from the extremities of the branches, and, when ripe, about sixteen inches in length. The seeds are large, sweet, and nutritious, and form an important article of food to the Indians, who collect them. The most valuable and useful of the many species is *P. Strobus*, our common North American White Pine. This is a handsome, slender tree, growing from 100 to 200 feet high, and with a circumference of from three to twelve feet. This tree is diffused, though not uniformly, over a vast extent of country, from Maine westward to the Rocky Mountains. For economical purposes, its value is greater than all other timbers combined. There are many species cultivated for their beauty as ornamental trees for the lawn, and they are entitled to more consideration than they have thus far received. They thrive well in a sandy or light loamy soil, and may be transplanted from the nursery rows with perfect safety. Numerous other species, grown mainly for lawn decoration, are given in nurserymen's catalogues.

Pinxter Flower. A local name of *Azalea nudiflora*, common in the swamps of the Middle and New England States.

Pi'per. Pepper. From *pepto*, to digest; referring to the stimulating power. Nat. Ord. *Piperaceæ*.

"*P. nigrum* yields the Pepper of commerce, a condiment that has been held in high esteem from the earliest times. It is frequently mentioned by Roman writers of the Augustin age, and it is related that in the fifth century Attila demanded, among other things, 3,000 pounds of Pepper in ransom for the City of Rome. Pepper is cultivated in the East and West Indies, Sumatra, Java, etc., but that which comes from Malabar is held in the highest esteem. The Pepper-vine will, if left to itself, attain a height of twenty or more feet; but in cultivation it is found more convenient not to allow it to exceed the height of twelve feet. The plants are placed at the base of trees that have rough or prickly barks, in order that they may more readily attach themselves to the trunk. In three years they produce their spikes of fruit, and continue to do so for some seven or eight years, after which time they become less productive. The fruit, when ripe, is of a red color. It is gathered before it is fully ripe, and spread on mats in the sun, when it loses its red color and becomes black and shriveled, as when offered in the market. This is Black Pepper. White Pepper is the same fruit, freed from its outer skin by maceration in water and subsequent rubbing. *P. trioicum*, a nearly allied species to *P. nigrum*, yields also some little of the Pepper of commerce. There are several other species under cultivation, but all of the same general character.

"*P. Betle* furnishes the Betel-leaf of the southern Asiatics, in which they enclose a few slices of the Areca-nut and a little shell-lime; this they chew to sweeten the breath and to keep off the pangs of hunger, and such is the immense consumption of this luxury in the East, that it nearly forms as extensive an article of commerce as that of tobacco in the West."—Paxton's Bot. Dict.

Pipera'ceæ. A natural order of shrubs or herbs with articulated stems, and alternate, sometimes whorled leaves. They are natives of the hottest portions of the globe, and occur commonly in South America and India. They have pungent, acrid, and aromatic properties; some are narcotic and astringent. Among the most important products of the order are Pepper and Betel. There are about twenty genera and upwards of 600 species, *Artanthe*, *Piper*, and *Peperomia*, affording the best known examples.

Pipe-Tree. See *Syringa vulgaris*.

Pipe Vine. *Aristolochia sipho*.

Pipe-wort. *Eriocaulon septangulare*.

Pipsissewa. See *Chimaphila*.

Pipta'nthus. From *pipto*, to fall, and *anthos*, a flower; the teeth of the calyx, as well as the petals and stamens, very soon fall off. Nat. Ord. *Leguminosæ*.

P. Nepalensis, the only described species, a native of the temperate Himalayas, forms a very handsome, hardy, or nearly hardy evergreen shrub, bearing its large yellow flowers in terminal bracteate racemes. It was introduced in 1821, and is propagated by cuttings of the ripened wood, or by seeds. It is known also as *Baptisia Nepalensis*.

Piptathe'rum. From *pipto*, to fall, and *ather*, an awn. Nat. Ord. *Graminaceæ*.

P. multiflorum is a large perennial grass worth growing for its elegant feathery panicles, which are useful for arranging with cut flowers. It grows vigorously in any soil, and is perfectly hardy.

Pique'ria. Named after *A. Piqueria*, a Spanish botanist. Nat. Ord. *Compositæ*.

A genus of hardy shrubs, and annual or perennial herbs, mostly natives of Mexico and western South America. *P. latifolia*, is an annual, with purplish flower-heads, known in cultivation as *Ageratum latifolium*. *P. trinervia*, a hardy herbaceous species, has white flowers disposed in loose, corymbose, many-flowered panicles. It is increased by division.

Pisci'dia. Jamaica Dogwood. From *piscis*, a fish, and *cædo*, to kill; the leaves, twigs, and bark are used to stupefy fish. Nat. Ord. *Leguminosæ*.

A small genus of evergreen, white-flowered trees, from the West Indies. All that is of interest in this genus is included in the derivation of the name.

Piso'nia. Named in honor of *Nillem Piso*, of Amsterdam, an eminent physician and naturalist. Nat. Ord. *Nyctaginaceæ*.

A somewhat large genus of trees and shrubs, mostly natives of tropical America; a few being found in Asia, the Pacific and Mascarene Islands. A few of the species are in cultivation, but are of little interest.

Pistachio Nuts. See *Pistacia*.

Pista'cia. Altered from *Foustaq*, its Arabic name. Nat. Ord. *Anacardiaceæ*.

A genus of ornamental deciduous trees, indigenous to Asia Minor, and which are particularly abundant in Syria. *P. Lentiscus* yields the Gum Mastic which is used by the Turks for chewing to sweeten the breath and strengthen the gums. In this country it is

used for varnishing pictures, and by dentists. *P. Terebinthus*, the Turpentine-tree, forms a very beautiful and desirable tree where it is hardy. It is deciduous, and grows in the south of Europe to the height of thirty feet. The red hue of the young leaves of this species is exceedingly beautiful. The Chean or Cyprus turpentine is obtained from this tree, the liquid flowing from incisions made in the trunk soon becomes thick and tenacious, and ultimately hardens. *P. vera*, the Pistachia tree, which yields the eatable Pistachio-nuts, is a native of Western Asia, whence it has been introduced into, and is greatly cultivated in southern Europe. They are much used either dried like Almonds, or made into articles of confectionery. The species are rarely cultivated except in botanical collections.

Pi'stia. Name probably derived from *pistos*, watery, in reference to the habitat. Nat. Ord. *Aroideæ*.

A genus of tropical aquatic plants. *P. stratiotes* is very common in the West Indies, where it is known as Water Lettuce. It propagates itself with great rapidity, and frequently completely covers tropical ponds and water tanks with a coating of verdure, keeping the water beneath fresh and cool. Each plant sends out several runners, and upon the ends of these other similar plants are formed, which, again, send out runners until, in a short time, the surface of the water is covered. The flowers are very small, and borne in little spathes at the base of the leaves. The plant is well adapted for the aquarium.

Pistil. The female part of a flower, consisting of ovary, style, stigma, and ovules.

Pi'sum. Pea. From *pis*, the Celtic for Pea, whence the Latin name *pisum*. A genus of diffuse or climbing annual plants, one of which, *P. elatius*, having pale red flowers, is a native of the Taurian Mountains, the other, *P. sativum*, the cultivated Pea, is naturalized in the Mediterranean region and Western Asia. For a description and history of this species see "Pea."

Pita. *Agave Americana*, and the allied species. Pita-fibre and Pita-thread are names for the fibre, called also Aloe-fibre, obtained from the leaves of the larger Agaves such as *A. Americana* and *A. Mexicana*.

Pitca'irnia. In honor of *William Pitcairn*, a physician of London. Nat. Ord. *Bromeliaceæ*.

A handsome genus of green-house herbaceous plants, remarkable for their long panicles of bright red flowers, and for their long, narrow, prickly, green leaves. They are natives of the West Indies and South America. They will grow freely in rich sandy loam, but require partial rest after having made their new growth previous to flowering. They are increased by division or from seed. Introduced in 1820.

Pitch. The residuum obtained in the distillation of wood-tar from *Pinus sylvestris* and *P. Pinaster*; the resin of Pine, extracted by fire and inspissation. It is commonly known as Black Pitch.

Pitcher. A hollowed-out leaf, so called, as in *Nepenthes*, *Sarracenia*, etc.

Pitch of Amboyna. The resin of *Dammara Australis*.

Pitch. Burgundy. The purified resinous sap of *Abies excelsa*.

Pitcher Plant. See *Nepenthes*, and *Sarracenia*.
Australian or New Holland. *Cephalotus follicularis*.
Californian. *Darlingtonia Californica*.

Pitcher-shaped. The same as Campanulate, but more contracted at the orifice, with an erect limb, as the corolla of the *Vacciniums* or many of the *Ericas*.

Pitch Pine. See *Pinus*.

Pith. The central cellular part of a stem; the same as Medulla.

Pith-hat Plant. *Æschynomene aspera*.

Pith-tree. *Herminiera Elaphroxylon*.

Pithecolo'bium. Curl Brush Bean. From *pithecos*, an ape, and *lobos*, the lobe of the ear; in allusion to the native name, Monkey's earring. Nat. Ord. *Leguminosæ*.

A large genus of trees and shrubs natives of the tropical regions of the western hemisphere, tropical Asia, and Australia. *P. dulce*, a native of Mexico, produces cylindrical pods containing a sweet edible pulp which the Mexicans, who call the tree Guamuchil, boil and eat. The Spaniards introduced it into the Philippine Islands, whence it has been carried to India; and it is now planted along the lines of railway in the Madras Presidency where the fruit is known as Manilla Tamarinds. *P. Saman* yields edible pods, which, in Venezuela and Brazil are fed to the cattle, like the Carob pods of Europe. *P. pruinosum*, introduced from Queensland in 1869 forms a beautiful green-house shrub, the white flowers with long exserted stamens growing in globular umbels from the axils of the upper leaves. The young branches, foliage, and inflorescence are covered with a rusty pubescence. The genus is closely allied to *Inga*, and the species require the same general treatment.

Pitted. Having numerous small shallow depressions or excavations.

Pittospora'ceæ. A natural order of trees or shrubs, with simple, alternate, exstipulate leaves, and regular symmetrical white, blue, or yellow flowers, found chiefly in Australia. Many of them are resinous, and in some instances the berries are edible. *Sollya*, *Pittosporum*, and *Billardiera* are representative genera, of which there are nine, including eighty or more species.

Pitto'sporum. From *pitto*, to tar or pitch, and *sporos*, seed; the seeds are covered with a resinous pulp. Nat. Ord. *Pittosporaceæ*.

An extensive genus of half-hardy evergreen shrubs, natives of China, Australia, the Canaries, and the Cape of Good Hope. Most of the species have terminal clusters of white, fragrant flowers, and broadish, shining, dark green leaves, and they are all very ornamental. They require the protection of a cellar or cool house during the winter. They were first introduced in 1789, and are propagated by cuttings.

Pla'cea. Derivation of name unknown. Nat. Ord. *Amaryllidaceæ*.

P. ornata, the best known species, is a delicate bulb from Chili, producing on a slender scape, about six inches high, four to seven flowers, which are snow white on the outside, and striped with brilliant vermilion

lines within. It requires cool green-house treatment. While flowering, and until it shows symptoms of rest, it needs a warm and humid atmosphere, after which it can be put under a bench until January, when it should be re-potted and moderately watered, and it will flower in May. It was introduced in 1840, and is propagated by offsets.

Placenta. The place or part on which ovules originate.

Placentiform. Quoit-shaped, or like a flat cake in form.

Plagia'nthus. From *plagios*, oblique, and *anthos*, a flower; referring to the usually unequal-sided petals. Nat. Ord. *Malvaceæ*.

A small genus of green-house or half-hardy shrubs, natives of southern Australia and New Zealand. *P. Lyallii*, is the most ornamental species, and forms a handsome green-house plant, with drooping, axillary, white flowers. It was introduced from New Zealand in 1871, and is easily increased by cuttings.

Plagioli'rion. From *plagios*, oblique, and *lierion*, a lily; in allusion to the shape of the perianth. Nat. Ord. *Amaryllidaceæ*.

P. Horsmanni, the only described species is a very pretty stove-house bulb, introduced from Columbia in 1883. Its pure white flowers are disposed in a ten to twelve flowered umbel, which though smaller than those of the *Eucharis*, to which it is closely allied, are quite showy and ornamental.

Plagiolo'bium. From *plagios*, transverse, and *lobos*, a pod; alluding to the shape of the pod. Nat. Ord. *Leguminosæ*.

A genus of very beautiful green-house plants, now placed under *Hovea*, by many botanists.

Plaited. Folded lengthwise, like the plaits of a closed fan.

Plane. Flat, level.

Plane'ra. Named in honor of *I. J. Planer*, a German botanist who published a "Flora of Erfurt" in 1788. Nat. Ord. *Urticaceæ*.

A small genus of trees, natives of Asia and North America, closely allied to the Elms. *P. Richardi*, the Zelkona tree, the wood of which is exceedingly hard, and takes a fine polish, forms a large and very ornamental tree in its native country, and has smooth bark, and a much branched crown, like an erect growing Beech. *P. aquatica*, the Planer Tree (syn. *P. Gmelina*), our only native species is found in the Southern States, and is a small tree, to which no particular value is attached. Either of the species can be grafted on the Elm.

Planer Tree. See *Planera aquatica*.

Plane Tree. See *Platanus*.

Plane Tree, Scotch. A common name in Scotland for *Acer Pseudo-platanus*.

Plantagina'ceæ. A natural order of annual or perennial herbs, natives of the temperate regions of both hemispheres, especially in Europe and North America. Several of the species are employed in medicine. The order comprises only three genera, *Bougueria*, *Littorella*, and *Plantago*, and about two hundred species.

Planta'go. Plantain. The old name of the genus, used by Pliny. Nat. Ord. *Plantaginaceæ*.

P. lanceolata (Rib-grass), is sometimes sown with grasses as a condiment for sheep pasture or for a rabbit warren. *P. major*, the common Plantain of the door-yard, and grass-plots, is found near the abode of civilized man in all parts of the world.

Plantain Tree. See *Musa*.

Plantain. See *Plantago*.

Plantain Lily. A popular name for the genus *Funkia*.

Plantain. Water. The common name of *Alisma Plantago*, once regarded as a specific against Hydrophobia.

Pla'ntia. Named by Dr. Herbert in honor of *Mr. Plant*, a zealous and industrious experimental cultivator and nurseryman at Cheadle, England, who raised some interesting hybrids among this race of plants. Nat. Ord. *Iridaceæ*.

P. flava, the only species, is a beautiful yellow-flowering bulb from the Cape of Good Hope. It is a delicate growing plant, bearing numerous pretty little flowers on a slender scape about one foot high. It is propagated by offsets and requires the same treatment as the tender species of *Iris*. Introduced in 1842. This genus is now included with *Hexaglottis* by some botanists.

Plant Lice. See Insects.

Planting. This is an operation performed by the fingers, dibber, trowel, or by the spade. The condition of soil for planting should be similar to that for Sowing (which see). And here, too, as in sowing, the same necessity for moderately firming the soil to the roots is as important as in firming the soil over seeds, and, as advised in seed sowing, no better method can be used in firming the soil after planting than by the feet. In the driest weather in July hundreds of acres of Celery, Cabbage, etc., are planted by our market gardeners on newly plowed ground, without using a particle of water, by the system of firming the plants with the foot after planting. The planter sets the plant with the dibber, and on finishing the row, returns on it, pressing the soil to each plant firmly with the side of his foot. This prevents the dry air penetrating the loose soil, and plants so set will strike out new roots in thirty or forty hours, after which they are safe. The same rule should be adopted in setting out all plants, shrubs, trees, or anything else, particularly if the weather is hot and dry. Countless millions of plants are lost every season by want of the simple operation of firming the roots after planting. In setting out plants that have been growing in pots, there is perhaps not so much necessity, as the roots are not mutilated, and hence make a quicker start; still circumstances must be the guide in the operation; and if the soil is very dry and the weather warm, a moderate amount of pressure around the ball of earth will be necessary. Sometimes in setting out plants from pots, the ball is so hard as to prevent the inner roots getting easily to the surface; in such cases the ball should be crushed or beaten so as to render it partially loose, which greatly conduces to the growth of the plant.

Planting. Evil of Deep. More than half the losses in tree planting and fruit trees especially arise from their being planted too deep. No

tree should be planted deeper than it formerly grew, as its roots are stifled for the want of air, or starved by the poverty of the soil at the depth where they are placed. It is much the better and more natural process, to plant the tree so that it shall, when the whole is complete, appear just as deep as before, but standing on a little mound two or three inches higher than the ground round about. This, when the mound settles, will leave it nearly on a level with the previous surface.

Plant Protectors. This term is applicable to anything which acts, if only temporarily, to preserve plants from injury. Bast-mats, straw mats, hand lights, bell glasses, small movable frames, covered either with glass or waterproof protecting cloth, or waterproof fibre, may all be termed appliances for this purpose. This protecting cloth, while being no cheaper than ordinary grades of cotton cloth, has the advantage in being so prepared that it is mildew-proof, and will last from five to ten years, according to the care given it. It is made in yard widths and can be shaped for use according to circumstances. Probably the simplest plan is to tack it to a light frame three by six feet and use it just as sashes are used. Such "sashes," made of protecting cloth, would cost no more than twenty cents each, while glass sashes cost (to say nothing of expense in freighting) $2 each. Besides, in the hands of inexperienced cultivators, the protecting cloth is safest, for, if this covering is left on in the daytime when the sun is shining there is comparatively little rise of temperature underneath it, while it is well known that if ventilation of frames covered by glass sashes is not carefully attended to, the crop beneath may be quickly ruined by the sun's rays acting on the glass and raising the temperature. It can also be procured on galvanized iron folding frames, and is invaluable for the early forwarding of plants, protecting from frosts, insects, etc. It is also useful for covering hot-bed frames in spring, in lieu of glass, after excessive freezing weather is over, and also for throwing over bedding plants at night, in fall, when there is danger of frost. By this means beds of Coleus, Achyranthes, and other plants may be retained in their beauty for weeks, after similar plants have been blackened and destroyed in unprotected beds by one night's untimely frost. It is admirably adapted for the temporary green-houses, or structures now so much used to protect and flower Chrysanthemums in the fall.

Plants in Rooms—Are they Injurious to Health? The question whether plants may be safely grown in living rooms is now settled by scientific men who show that, whatever deleterious gases may be given out by plants at night, they are so minute in quantity that no injury is ever done by their presence in the rooms and by being inhaled. Though we were glad to see the question disposed of by such authority, experience had already shown that no bad effects ever resulted from living in apartments where plants were grown. Our green-houses are one mass of foliage, and I much doubt if any healthier class of men can be found than those engaged in the care of plants. But timid persons may say that the deleterious gases are given out only at night, while our green-house operators are only employed in daylight. This is only true in part. Our watchmen and men engaged in attending to fires at night make the warm green-houses their sitting-room and their sleeping-room, and I have yet to hear of the first instance where the slightest injury resulted from this practice. Many of our medical practitioners run in old ruts. Some Solomon among them probably gave out this dogma a century ago; it was made the convenient scapegoat of some other cause of sickness, and the rank and file have followed in his train. A belief in this error often consigns to the cellar, or to the cold winds of winter, the treasured floral pets of a household.

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Plants for Shady Places. There are few plants that will flower in places from which sunshine is entirely excluded. Some plants will grow well enough, developing shoots and leaves, but *flowers* of nearly all kinds must have some sunshine. Of those that do well and flower when planted out in the open ground where sunlight only comes for two or three hours during the day, may be named the following: Calceolarias, Fuchsias, Lobelias, Herbaceous Phloxes, Pansies, Forget-me-nots, Lily of the Valley, and other herbaceous plants and shrubs whose native habitat is shady woods. A better effect, however, is produced in such situations by ornamental-leaved plants, such as Coleuses of all kinds, Amaranths, Achyranthes, Caladiums, Cannas, and other plants with highly-colored or ornamental leaves. With these may be combined the different styles of white or gray-leaved plants, such as Centaureas, Cinerarias, and Gnaphaliums, plants known under the general popular term of "Dusty Millers." This is just the situation also for many of the hardier Palms, Ficus, Crotons, or other exotic plants during the summer months, to recuperate from the effects of the winter's confinement in the house or conservatory. For a shady door-yard in the city, nothing can surpass the white and blue Periwinkle (*Vinca minor*) or Creeping Charlie (*Lysimachia nummularia*) for a groundwork, relieved with clumps or groups of our various native or hardy Ferns, Plaintain Lilies the variegated Calla, or plants of a like nature.

Plant Stove. The name generally given to a structure devoted to the cultivation of those plants that require a high temperature to grow them to perfection. As many of the inhabitants of the Plant Stove are grown for their beautifully colored foliage as well as for flowers, a structure that admits all the side light possible is requisite, thus securing to the plants a brighter coloring as well as a shorter jointed growth, and a more healthy development. Ventilation should be so arranged that the air cannot, on entering, come in direct contact with the plants; for preventing this, it is better to place side ventilators in the walls near the pipes, and to only use others situated near the top when there is comparatively little difference between the internal and external temperatures. A slight shading is necessary during the summer months, which is best applied as described under "Shading." As plenty of water and a moist atmosphere are necessary to their proper cultivation, the plants must therefore

be well and carefully drained; cleanliness amongst plants and also pots is most important, as a high temperature favors the multiplication of insect pests.

Plants, Unhealthy. THE REMEDY. Whenever plants begin to drop their leaves, it is certain that their health has been injured. This may be due to over-potting, over-watering, overheating, too much cold, or the application of such stimulants as guano, or to some other cause which has destroyed the fine rootlets by which the plant feeds, and induced disease that may lead to death. The case is not usually important enough to call in a "plant doctor," so the amateur begins to treat the patient, and the practice is, in all probability, not unlike that of some of our household physicians who apply a remedy that increases the disease. Having already destroyed the, so to speak, nutritive organs of the plant, the "stomach" is gorged with food by applying water, or with medicine by applying guano or some patent "plant food." Now the remedy is nearly akin to what is a good one when the animal digestion is deranged—give it no more food until it re-acts. We must then, if the roots of the plant have been injured from any of the above-named causes, let the soil in which it is potted become nearly dry; then remove the plant from the pot, take the ball of soil in which the roots have been enveloped, and crush it between the hands just enough to allow all the hard outer crust of the ball of earth to be shaken off; and then re-pot in rather dry soil, using a new flower-pot, or the old one, thoroughly washing it, so that the moisture can freely evaporate through the pores. Be careful not to over-feed the sick plant. Let the pot be only large enough to admit of not more than an inch of soil between the pot and the ball of roots. After re-potting, give it water enough to settle the soil, and do not apply any more until the plant has begun to grow, unless, indeed, the atmosphere is so dry that the moisture has entirely evaporated from the soil, and then, of course, water must be given, or the patient may die from the opposite cause—starvation. The danger to be avoided is, in all probability, that which brought on the sickness, namely, saturation of the soil by too much water. Other causes may induce sickness in plants, such as an escape of gas in the apartment, or smoke from a flue in the greenhouse; but in all cases, when the leaves fall from a plant, withhold water, and if there is reason to believe that the soil has been poisoned by gas, or soddened with moisture, shake it from the roots as before advised, and re-pot in a fresh flower-pot.

Platana'ceæ. A small natural order of usually tall trees, of which two are natives of eastern Europe, and Asia, and the rest of North America. *Platanus*, the only genus of the order, comprises five or six species, valuable for their timber as well as for their ornamental appearance.

Platanthe'ra. Native Orchids, now included in the genus *Habenaria*, which see.

Pla'tanus. Plane Tree, Button-wood, or Sycamore. From *platys*, broad or ample; in allusion to the spreading branches and shady foliage. Nat. Ord. *Platanaceæ*.

P. occidentalis is the well-known Button-wood tree, and is common throughout the United States east of the Rocky Mountains. *P. orientalis*, the Oriental or Common Plane, is a beautiful, large, spreading tree presenting a great variety of handsome forms, which differ chiefly in the shape and lobing of the leaves. The variety *P. O. Acerifolia* (maple-leaved) is the commonest in cultivation, frequently bearing the name of *P. occidentalis* from which it may readily be distinguished when in fruit, by the peduncles bearing more than one ball, and frequently many. *P. racemosa*, a California species, is remarkable for its deeply five-lobed leaves, the under surface of which, even when they become old, is copiously clad with woolly hairs. This species furnishes a hard and durable timber, and is much less liable to warp than that of *P. occidentalis*. *P. Wrightii*, found on the banks of rivers in the valleys of New Mexico, Arizona, and northern Mexico, forms a beautiful tree forty to sixty feet in height. The wood is light, soft, very close-grained and compact. Some fine specimens of this genus are to be seen as street trees in Washington, D. C.

Platyca'rpum. From *platys*, broad, and *Karpos*, a fruit; alluding to the shape of the capsule. Nat. Ord. *Rubiaceæ*.

P. Orinocense, the only described species, introduced from Orinoco in 1813, is a tall tree with robust, opposite, terete branches. If the plants are kept rather dry in winter, it will tend to throw them into flower.

Platyce'rium. Stag's Horn Fern. From *platys*, broad, and *keras*, a horn; referring to the form of the fronds. Nat. Ord. *Polypodiaceæ*.

A very distinct and remarkable genus of Ferns, formerly grouped with *Acrostichum*, but now placed by themselves in a separate genus under the name of *Platycerium*, because they produce their sori in large amorphous patches, and not, as in the true *Acrosticheæ*, over the whole fertile portions. The species are few in number, chiefly Eastern or Australian and for the most part tropical. "They have hetermorphous, coriaceous, laciniate, or lobate fronds, clothed with stellate hairs, and the fertile fronds are articulate. The broad fronds are traversed by several furcate ribs, between which there is a close network of finer buried veins. The large, shapeless masses of spore cases are attached to the plexus of crowded veins, and are quite naked. In *P. biforme* they occupy a separate scutiform lobe, but in the other species they are variously situated near the margin."—Dr. Moore in Bot. Treas. *P. alcicorne* is the type of the genus, and was introduced in 1808. It is best known under its common name of Stag's Horn Fern, so called because of the striking resemblance of the fronds to the horns of a stag. This is the species commonly seen in our greenhouses. It is a native of New South Wales, and was introduced in 1808. *P. grande*, a native of Moreton Bay, was introduced into Europe in 1828, but is still quite rare in the United States. It has broader and larger fronds than *P. alcicorne*, is a plant of altogether grander proportions. To this species has been given the name of Elk's Horn Fern. Mr. F. W. Burbidge, a well-known botanist and collector, in his recent book of travels in Borneo, etc. ("The Garden of the Sun") thus

POA ARACHNIFERA (TEXAN BLUE GRASS).

PLATYCODON GRANDIFLORUM.

PHYSIANTHUS ALBENS (CRUEL PLANT).

PLATYCERIUM ALCICORNE.

POA PRATENSIS (KENTUCKY BLUE GRASS).

POA NEMORALIS (WOOD MEADOW GRASS).

POA SEROTINA (FOWL MEADOW GRASS).

POA AQUATICA (WATER MEADOW GRASS).

POA TRIVIALIS (ROUGH-STALKED MEADOW GRASS).

speaks of the Elk's Horn Fern: "I resided for some time in a house which had been occupied by Mr. Hugh Low, the garden and fruit orchard of which afforded me most delightful walks morning and evening. I never saw the Elk's Horn Fern (*Platycerium grande*) so luxuriant anywhere as it was on the boles of some large Orange trees here. The barren fronds were broad, like the horns of the giant Irish elk, and the more slender fertile ones drooped on all sides from the base of the nest formed by the leafy expansions. I measured some of these fertile fronds, and found them fully *seven* feet in length. These splendid Ferns, and the choicest of epiphytal Orchids, which had been planted among the branches of the trees, made a walk among them most enjoyable." This species is still quite rare in the United States. Another species, *P. Æthiopicum*, has been still more recently introduced, and is to be found in few collections as yet. The fronds of this species are of still grander proportions than the preceding, and has received the common name of Moose Horn Fern. The above with *P. Wallichii*, are the best and most interesting of these grotesque Ferns. All these species are worthy of a place in any collection, however small. It is supposed by many that they are difficult to grow; but this is not so. There are very few plants that will accommodate themselves to such varying conditions of heat, moisture and exposure. They are admirable room plants. They may be grown in pots in a porous soil composed of leaf-mold, sand, and plenty of potsherds or pieces of charcoal; or, better still, they may be grown on cork or a piece of a tree log, two or three feet long and about a foot in diameter. They are propagated by division and by spores, the latter, however, being an uncertain method of propagation, except by an expert.

Platyco'don. From *platys*, broad, and *kodon*, a bell; the flowers are broad and bell shaped. Nat. Ord. *Campanulaceæ*.

A genus of hardy herbaceous perennials, with large white or purple flowers, natives of China and Dahuria. The various varieties of *P. grandiflora* are most desirable plants for the herbaceous border. A new dwarf variety from Japan, *P. Mariesi*, is a distinct and most acceptable border plant. In the Northern States they should have a slight protection in winter.

Platycra'ter. From *platys*, broad, and *krater*, a bowl; alluding to the expanded calyx of the barren flowers. Nat Ord. *Saxifragaceæ*.

P. arguta, the only representative of the genus, is a hardy prostrate, or creeping shrub, with greenish-white, scattered flowers, much larger than those of *Hydrangea*. It was introduced from Japan in 1866, and is easily propagated by cuttings.

Platylo'bium. Flat Pea. From *platys*, broad, and *labos*, a pod; in reference to the broad legumes. Nat. Ord. *Leguminosæ*.

A small genus of handsome evergreen shrubs from Tasmania and New Holland. Like other New Holland plants, these require a light sandy soil, well drained. They should be carefully watered, and have plenty of fresh air whenever it can be admitted. A shelf near to the glass, in the most airy part of the green-house in winter, and a shaded situation out of doors in summer, will suit them. The slender branches of all the species require some support though they do not look well when trained to a regular trellis. It is, therefore, better to use slight sticks, where most wanted, allowing the points of the shoots to hang in a graceful, pendant manner. The prevailing color of the large pea-shaped flowers is orange, or yellow and red. The species are rarely met in collections, though deserving of general cultivation. They were introduced about 1800, and are propagated by cuttings or from seed.

Platylo'ma. From *platys*, broad, and *loma*, a fringe. Nat. Ord. *Polypodiaceæ*.

A genus of tropical Ferns, some of which are very beautiful. They require to be grown in a shaded house, warm and moist. This genus is included under *Pellæa* by some botanists.

Platylo'phus. From *platys*, broad, and *lophos*, a crest; the capsule is so much compressed at the apex, as to appear winged. Nat. Ord. *Saxifragaceæ*.

P. trifoliata, White Alder, the only species is a beautiful green-house evergreen tree with white flowers, disposed in long, axillary, many-flowered panicles. It is a native of the Cape of Good Hope, and was introduced in 1820. Syn. *Wienmannia*.

Platys. A term in Greek compounds, signifying broad; as *Platyphyllus*, broad-leaved.

Platyste'mon. From *platys*, broad, and *stemon*, a stamen. Nat. Ord. *Papaveraceæ*.

Very handsome yellow-flowering annuals, quite hardy, of creeping habit, and free flowering. The seed should be sown in March, on a warm border, where the plants are required to bloom. The two species that compose this genus are natives of California and Siberia.

Platythe'ca Galioides. This is given in "Nicholson's Dictionary of Gardening" as the correct name of *Tetratheca* or *Tremandra verticillata*.

Platysti'gma. From *platys*, broad, and *stigma*, the female organ. Nat. Ord. *Papaveraceæ*.

P. lineare, the only cultivated species, is a hardy annual, found in California in 1833. It is a dwarf-growing and free-blooming plant. The flowers are yellow, and, from their profusion, quite showy. It requires no more care than any other hardy annual.

Platysty'lis. From *platys*, broad, and *stylos*, a style; in allusion to the dilated style. Nat. Ord. *Leguminosæ*.

A genus of very handsome herbaceous border plants, now included by many botanists under *Lathyrus*.

Plectoco'mia. From *plectos*, plaited, and *kome*, leaves; probably from the leaves being used in plaiting.

A genus of *Palmaceæ*, comprising some six species, allied to *Calamus*, and armed with recurved prickles. The leaves are large, pinnate, furnished with long whip-like tails, beset on the under side with very strong spines. *P. Assamica*, *P. Andersoni*, *P. Himalayana*, and *P. elongata*, are the best known species. They are handsome plants, distinct, and graceful, and are freely propagated by suckers. They are natives of the Malayan Archipelago and

India. Handsome plants of easy culture, first introduced in 1840.

Plectopo'ma. A group of hybrid *Gesneras*, which some writers have constituted a distinct genus. They are a strong, erect-growing class, with but little to distinguish them from others of this interesting order.

Plectran'thus. From *plektron*, a cock's spur, and *anthos*, a flower; referring to the shape of the flower. Nat. Ord. *Labiatæ*.

Green-house shrubs and herbaceous plants, closely allied to *Coleus*. Natives of Africa, South America, and Asia. They all have purple flowers, produced in terminal and axillary racemes, but being of little beauty or interest, they are rarely cultivated.

Plectri'tis. From *plectron*, a cock's spur; in reference to the flowers being gibbous in front. Nat. Ord. *Valerianaceæ*.

A genus of Californian and Chilian annuals, with pink flowers in dense capitate cymes. They require the same treatment as other hardy annuals. Syn. *Valerianella*.

Plectro'nia. From *plectron*, a cock's spur; in allusion to the large spines which are to be found on some of the species. Nat. Ord. *Rubiaceæ*.

A large genus of ornamental trees or shrubs, sometimes climbing, natives of tropical Asia, Africa, Australia and the Pacific Islands. Few of the species have been introduced, and are of but little interest, horticulturally. Syns. *Canthium*, *Mitrastigma*, *Phallaria*, etc.

Plee'a. Named after *pleias*, the seven stars; in reference to the disposition of the flowers. Nat. Ord. *Liliaceæ*.

P. tenuifolia, the only species, is a hardy perennial plant with knotted-rush-like stems or rhizomes and greenish-white flowers. It is a native of the Southern United States, and is increased freely by seeds.

Ple'ione. A mythological name. Nat. Ord. *Orchidaceæ*.

A small genus of dwarf epiphytal Orchids, formerly classed with *Cœlogyne*. They are found growing in high altitudes in the mountains of northern and northeastern India. They are remarkable for their dwarf habit and richly-colored flowers. The flowers are produced in autumn or early winter, after a period of rest, and immediately precede the new growth. They are of easy culture, requiring a house of moderate temperature, and alternate seasons of growth and rest. Propagated by division. Introduced in 1864.

Plenus. Pleno. Double, as in double flowers.

Pleope'ltis. From *pleos*, full, and *pelte*, a shield; referring to the covering of the spores or seed-cases. Nat. Ord. *Polypodiaceæ*.

An interesting genus of tropical ferns inhabiting some portions of South America and the South Pacific Islands. *P. Xiphias* is a beautiful plant for the green-house. It is of considerable size, and well furnished with sori; firm, but not leathery in texture, and arched and somewhat undulated at the edge, which is otherwise entire; the venation is strongly marked and closely reticulated. This genus is now included under *Polypodium* by some botanists.

Plero'ma. From *pleroma*, fullness; referring to the cells of the seed-vessel. Nat. Ord. *Melastomaceæ*.

A small genus of handsome green-house evergreen shrubs from Brazil. They are free flowering and of easy culture. A rich soil and liberal watering during the summer are essential, that the new growth may be strong; they will then produce their clusters of purple flowers freely in autumn and winter. *P. elegans* is one of the best known species, and bears beautiful flowers of a rich purple color. *P. macranthum floribundum* is also a very free flowering species, producing its large violet-blue flowers in great profusion on quite young plants. They were first introduced in 1821, and are increased by cuttings.

Pleurisy Root. A popular name of *Asclepias tuberosa*, from its supposed medicinal qualities.

Pleuro'gyne. From *pleuron*, a side, and *gyne*, the female organ; referring to the stigmas issuing from the side of the seed-vessel. Nat. Ord. *Gentianaceæ*.

P. rotata, the only cultivated species, is a low growing hardy annual from Siberia.

Pleurope'talum. From *pleuron*, a side, and *petalon*, a petal; in allusion to the shape of the corolla. Nat. Ord. *Amaranthaceæ*.

A small genus of slightly-branched glabrous shrubs, natives of Mexico, Ecuador and the Galapagos Islands. *P. Costaricense*, the only species yet introduced, is a small evergreen shrub with green branches. It was introduced from Central America in 1883, but is rarely found in cultivation.

Pleurotha'llis. From *pleuron*, a side, and *thallo*, to flower; in allusion to the one-sided disposition of the flowers of some of the species. Nat. Ord. *Orchidaceæ*.

This is one of the most extensive genus of Orchids, comprising nearly three hundred species, all epiphytes, and natives of the West Indies and South America. Though interesting botanically, only a few species, such as *P. ornata*, *P. scapha*, *P. tridentata*, and *P. Barberiana*, have sufficient merit to warrant their introduction into the Orchid house.

Plicate. Plaited or folded together lengthwise, like a closed fan.

Plo'cama. From *plocamos*, bent hairs; alluding to the pendulous branches. Nat. Ord. *Rubiaceæ*.

P. pendula, the only described species, is an erect shrub with very slender, pendulous branches. The flowers are white, small and terminal. It was introduced from the Canary Islands in 1772, and is readily increased by cuttings.

Plocoste'mma. From *plokos*, curled, and *stemma*, a crown; referring to the crown of the stamens. Nat. Ord. *Asclepiadaceæ*.

A small genus of green-house evergreen twiners, allied to *Hoya*, and requiring the same general treatment. They inhabit the forests of Borneo and Java. Introduced in 1858.

Ploughman's Spikenard. *Baccharis halimifolia*.

Plowing. Many gardeners yet ignore the plow in the garden, even where it is perfectly practicable to use it. We have used the plow and harrow for pulverizing on every foot that it was possible to use them in, in all our operations in the ground, whether for fruit, flow-

ers or vegetables, for the past thirty years, and feel convinced that their use for that purpose is far better than the spade or digging fork, besides the immense saving in labor.

Plum. The well-known *Prunus domestica*, and its varieties, from which the Plums of our gardens have originated, are found throughout Asia and southern Europe. The early history of the cultivated varieties is quite obscure. They were introduced into England from France early in the fifteenth century. Both the French and the English horticulturists have given this fruit considerable attention. New York has the credit, however, of having produced the greatest number of excellent varieties. Downing says: "That the soil and climate of the Middle States are admirably suited to this fruit is sufficiently proved by the almost spontaneous production of such varieties as the Washington, Jefferson, Lawrence's Favorite, etc.; sorts which equal or surpass in beauty or flavor the most celebrated Plums of France or England." There are several species indigenous to this country, some of which are of fair flavor, and are now being cultivated by some of our nurserymen. Chickasaw Plum, *Prunus Chicasa*, is a native of Maryland and southwestward to Texas, where it is known as the Dwarf Texas Plum. The Beach Plum, *P. maritima*, is a low, straggling tree or shrub, from two to five feet high. The fruit is nearly round, red or purple, and covered with bloom. It is common in sandy places on the sea-coast from Maine to Virginia, and seldom ripens well elsewhere. The Wild Red or Yellow Plum is *P. Americana*. This species grows from ten to twenty feet high, and is common in hedgerows from Canada to the Gulf of Mexico. The fruit is pleasant-tasted, but has a tough skin. It ripens in July and August. The great difficulty in the cultivation of the finer varieties of Plum is the *Curculio*, which punctures the fruit in the green state, and lays its eggs, which, by the time the fruit is ripe, develops to the larvæ state, completely destroying the fruit. The only effectual remedy thus far is that so strongly recommended and practiced years ago by Mr. John J. Thomas, and Dr. Trimble, and so successfully practiced by Ellwanger and Barry, in their extensive Plum Orchard—to spread sheets under the trees and jar the branches so as to shake off the insect. This, to be effective, must be begun just after the fruit has formed, and continued at least once a week for thirty or forty days. See Curculio.

Plum. American Wild. *Prunus Americana.*
Australian. *Cargilla arborea*, and *C. Australis.*
Beach. *Prunus maritima.*
Californian Wild. *Prunus subcordata.*
Canada. *Prunus Americana.*
Carolina. *Prunus Caroliniana.*
Ceylon. *Flacourtia sapida.*
Cherry. *Prunus Myrobalana.*
Chicasaw. *Prunus Chicasa.*
Cocoa. *Chrysobalanus Icaco.*
Damson. *Prunus domestica* var. *damascena.*
Date, American. *Diospyros Virginiana.*
Date, Chinese. *Diospyrus Kaki.*
Date, European. *Diospyrus Lotus.*
Double-flowered, Chinese. *Prunus Sinensis fl. pl.*
E. Indian. *Flacourtia cataphracta*, and *F. Ramonchi.*
Gingerbread. *Parinarium macrophyllum.*
Green-gage. *Prunus Claudiana.*
Ground. *Astragalus caryocarpus.*
Hog. Various species of *Spondias*, etc.
Jamaica. *Spondias lutea.*
Japanese. *Prunus Sinensis.*
Mountain. *Ximenia Americana.*
Myrobalan. A variety of *Prunus domestica.*
Myrobella. *Prunus Myrobalana.*
Natal. *Arduina grandiflora.*
Orleans. A variety of *Prunus domestica.*
Pigeon. *Coccoloba Floridana.*
Queensland. The genus *Owenia.*
Sand. *Prunus maritima.*
Sapodilla or Sapotilla. *Achras Sapota.*
Sugar. *Malpighia saccharina.*
Tamarind. *Dialium Indicum.*
Weeping. *Prunus cerasifera.*
Wild, British. *Prunus communis.*
Wild, of the Cape of Good Hope. *Pappea Capensis.*
Wild-Goose. An improved variety of *Prunus Chicasa.*

Plumbagina'ceæ. A natural order of shrubs or herbaceous plants, found chiefly on the sea-shores or salt marshes in temperate regions. The flowers are blue, violet, pink, yellow or white, and some of the species possess tonic and astringent properties. Eight genera, including *Armeria*, *Statice*, and *Plumbago*, and over two hundred species constitute the order.

Plumba'go. Leadwort. From *plumbum*, lead. Some species were formerly said to cure Lead disease. Nat. Ord. *Plumbaginaceæ.*

A genus consisting of green-house evergreens and hardy herbaceous plants, natives of Europe, Asia, and Africa. Three of the species are well worth growing in the green-house. *P. Capensis*, with lavender-blue flowers, *P. rosea*, with rose-colored flowers, and *P. alba*, with white flowers. Each will grow well with ordinary treatment. The former is a valuable plant, as it produces its large panicles of lavender flowers nearly the whole winter. *P. Larpentæ*, has deep azure-blue flowers, flowering from August to November, and is perfectly hardy. The name of this species is now given by some as *Valoradia*, and by others, *Ceratostigma Plumbaginoides.* They were first introduced in 1818, and are easily propagated by cuttings of the roots, or shoots, and by division.

Plum-bush. Australian. *Asrotricha ptero-carpa.*

Plume-Grass. *Gynerium argenteum.*

Plume-Nutmeg. *Atherosperma moschata.*

Plume-Thistle. The genus *Cirsium*, and *Cnicus;* also *Carduus lanceolata.*

Plume-Thistle, yellow. *Cnicus Acarna.*

Plumose. Feathery, resembling feathers.

Plumule. The bud of seed; the youngest bud in a plant; the bud or growing point of the embryo.

Poa. Meadow Grass. From *poa*, signifying grass or herbage. Nat. Ord. *Graminaceæ.*

An extensive genus of grasses, containing some that are valuable for hay and pasture. *P. pratensis* is the well-known Kentucky Blue Grass, introduced from Europe, and now

thoroughly naturalized. *P. arachnifera*, Texas Blue Grass, is an invaluable hardy winter Grass for the south, and the longest, driest and hottest summer fails to injure it. It makes as good sod as the Kentucky Blue Grass (*P. pratensis*), and if sown together (not too deep) the seeds of the two varieties generally come up together after the same shower, for it takes a wet, damp, drizzly spell to start it. It can be cultivated, both from seed and sets, and may be planted either in the fall or spring. *P. serotina*, the Fowl Meadow Grass or False Red Top, and *P. aquatica*, the Water Meadow Grass, are both very valuable grasses, more especially for damp meadows, low banks of streams, etc. They grow luxuriantly in such situations, and furnish an immense quantity of herbage, which may be cut several times a season if desired. They are also excellent grasses for pasturage. *P. annua* is one of the worst weeds of English gardens.

Poculiform. Resembling a drinking-cup or goblet in shape.

Pod. The capsule or seed-case of leguminous and cruciferous plants, those of the former (Peas, Beans, etc.) being called legumes, and those of the latter (Cabbage, Turnip, etc.) siliques and silicules.

Pod Fern. See *Ellobocarpus*.

Poda'nthes. From *pous*, *podos*, a foot, and *anthos*, a flower; alluding to the flowers being borne on long pedicels. Nat. Ord. *Asclepiadaceæ*.

A genus comprising about eight species of shrubby plants closely allied to *Stapelia*, all natives of South Africa. They are but little cultivated.

Podium, Podos. In Greek compounds, signifying a stalk, stipe, etc., as *Podocephalus*, stalked-headed; *Leptopodus*, slender-stalked.

Podoca'rpus. Japan Yew. From *pous*, a foot, and *karpos*, a fruit; the fruits are foot-stalked. Nat. Ord. *Coniferæ*.

A genus of hardy and half-hardy evergreen trees and shrubs, indigenous in China, the East Indies, and New Zealand. *P. Japonica* is an upright-growing shrub, with dark, shining, green leaves, luxuriant in its growth, and in form resembling the Irish Yew. *P. cupressina* is noted as one of the best timber trees of Java; while *P. totara*, a New Zealand species, having a light, durable wood, has been frequently the subject of contention and strife among the natives; its bark is made use of for roofing purposes, and its fruits are eaten. Several species have been introduced into conservatories, and one or two Japanese or Chinese varieties are sufficiently hardy to stand out of doors, if slightly protected.

Podola'sia. From *pous*, *podos*, a foot, and *Lasia;* from which genus it differs in having a long stipe to the spadix. Nat. Ord. *Aroideæ*.

P. stipitata, the only introduced species, is a slender plant-stove perennial, with a short, erect caudex, and sagittate or hastate leaves, with elongated, narrow, acuminate lobes. It was introduced from Borneo in 1882, and is easily increased by division.

Podo'lepis. From *pous*, *podos*, a foot, and *lepis*, a scale; flower-stalk covered with scales. Nat. Ord. *Compositæ*.

Very pretty Australian plants. They are all nearly hardy. The perennials are increased by dividing the root, and the annuals (*P. gracilis*, etc.) by sowing in the green-house or on a hot-bed in February or March, and transplanting into the open border in May.

Podolo'bium. From *pous*, *podos*, a foot, and *lobos*, a pod; the seed-pod stands on a foot-stalk within the calyx. Nat. Ord. *Leguminosæ*.

A small genus of New Holland evergreen shrubs, with handsome red and yellow flowers. Ordinary green-house treatment will grow them successfully. They were introduced in 1822, and are best grown from seed. This genus is now included by some botanists under *Oxylobium*.

Podophy'llum. Duck's Foot. Abridged From *Anapodophyllum*, a word signifying a duck's foot; the leaves bear some resemblance to that; whence the English name, Duck's Foot. Nat. Ord. *Berberidaceæ*.

This is a small genus of hardy herbaceous plants, with thick, creeping root-stocks, which send up in spring a stem bearing two leaves, with a solitary flower between them. *P. peltatum*, a native species, is common in moist, shady woods, and is distinguished by the stamens being double the number of the petals. Its leaves are from five to nine-lobed; its flowers large, white, and nodding; and its fruit egg-shaped and yellowish, somewhat resembling a small lemon, and hence sometimes called Wild Lemon, but more generally May Apple, or Mandrake. Its foliage is narcotic and poisonous, but the acid pulp of the fruit is eatable, though of a mawkish flavor. The roots possess active medical properties, highly esteemed by the Eclectic practitioners.

Podo'pterus. From *pous*, *podos*, a foot, and *pteris*, a wing; in allusion to the outer perianth segments being winged. Nat. Ord. *Polygonaceæ*.

P. Mexicanus, the only species, is a handsome green-house shrub, with flexuous branches, spiny at the tips. It grows freely in a compost of loam and peat, and is increased readily by cuttings of the young wood.

Podosti'gma. From *pous*, *podos*, a foot, and *stigma;* alluding to the stalked stigma. Nat. Ord. *Asclepiadaceæ*.

P. pubescens, the only species, a native of the Southern States from Florida to North Carolina, is a low pubescent perennial herb, of but little horticultural interest.

Podothe'ca. From *pous*, *podos*, a foot, and *theke*, a cell or capsule; alluding to the stalk of the fruit. Nat. Ord. *Compositæ*.

A genus of Australian hardy annuals of no great beauty; easily raised from seed. Syn. *Podosperma*.

Poet's Narcissus. The popular name of *Narcissus Poeticus*.

Pogo'gyne. From *pogon*, a beard, and *gyne*, the female organ; the style is bearded. Nat. Ord. *Labiatæ*.

P. multiflora, the only known species, is a hardy annual. It is a native of California, and was introduced in 1836. The flowers are lilac, and produced in great numbers. It thrives with the simplest garden culture.

Po'gon. A beard. This word is used in Greek compounds, and denotes any collection of long hairs.

POG

Pogo'nia. From *pogon*, a beard; alluding to the fringed lip of the flowers. Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial Orchids, common both in temperate and tropical regions. They are small plants, with drooping flowers, on slender pedicels, of a purple or greenish-yellow color. Several of the species are found from New York southward.

Pogo'nopus. From *pogon*, a beard, and *pous*, a food; in allusion to the shape of the flower. Nat. Ord. *Rubiaceæ.*

A small genus of trees and shrubs, natives of tropical America. *P. Caracasensis*, the only cultivated species, has showy bright pink flowers, borne in terminal-branched panicles. It was introduced to cultivation in 1855, and is propagated by cuttings.

Pogoste'mon. From *pogon*, a beard, and *stemon*, a stamen; the stamen filaments being hairy. Nat. Ord. *Labiatæ.*

A genus of tall herbs, found principally in India and Ceylon. The species are of but little interest except *P. Patchouli*, which has dense spikes of white flowers, tinged with purple, and which affords the celebrated Patchouli perfume, or Pucha-pat of the Hindoos. The odor is very peculiar, and even disagreeable to many, but in India it is one of the most common perfumes found in the bazaars.

Poincia'na. Flower Fence. Named after *M. de Poinci*, once Governor of the Antilles. Nat. Ord. *Leguminosæ.*

A small genus of very beautiful green-house evergreen shrubs, natives of South America and the East Indies. *P. pulcherrima*, the Barbadoes Flower Fence, is a really beautiful object when well grown, as is also *P. regia*, the former having large red and yellow flowers, and the latter rich crimson. They flower freely if grown in pots and plunged in a warm, sunny spot, during the summer season, care being taken to syringe freely to keep down red spider. They were first introduced in 1788, and are propagated by seeds or from cuttings of the half-ripened wood.

Poinse'ttia. Named in honor of *Joel R. Poinsette*, American minister to Mexico, who discovered the plant in Mexico in 1828. Nat. Ord. *Euphorbiaceæ.*

A small genus of evergreen shrubs from Mexico, producing large terminal bracts of fiery scarlet leaves from December until February; they give the plant a most splendid appearance. There is a variety with white bracts, but it is inferior to the species. *Poinsettia pulcherrima plenissima*, a new and double variety of recent introduction, is a magnificent plant, remarkable for the distinct character of its floral bracts, the size of the heads in which they are produced, and their marvelous brilliancy of color. Instead of the bracts being borne in a single head and spreading out as in the old form, in the new double kind they are gathered into clusters, which fill up the centre, so that the whole inflorescence is full and rosette-like in form. The double variety was discovered by Mr. Roezl in Mexico, and was bought by Mr. Isaac Buchanan, of New York, who sold it to an English florist, by whom it was distributed.

POI

This plant is of the easiest culture. After flowering cut back to within two buds of the old wood, take up the plants, and put them in a convenient place under a bench, and cover the roots with sand or earth, and keep dry. Let them remain until it is time to plant out ordinary bedding plants, when they should be put out in the open air, and planted in boxes six inches deep (say six plants in each box), a foot or so apart, giving them good rich soil. They should be taken into the house before the nights begin to get cool. In the latitude of New York they should be housed by the middle of September. They may be grown to flower in these boxes by giving them plenty of manure water; although, if wanted in large quantity, it is best to place the boxes on a green-house bench, knock off the sides and ends of the boxes, and fill up to the level between with soil. After the plants have become thus established, an occasional watering with liquid manure will add greatly to their growth. At no time should the temperature in the house fall below 50° at night or 70° during the day. To propagate, allow the cuttings to dry a day or two after they are taken from the plants; then cut them into pieces of two or three buds each, and insert them in an ordinary propagating bench. Pot off as soon as they are rooted, and grow on until the weather will permit of their being put out of doors, when they may be given the same care as the older plants. With this treatment the plants will usually be done flowering by New Year's, and may be taken up to make room for other plants. This genus is now by many botanists reunited with *Euphorbia.*

Poison. Arrow. The juice of *Euphorbia heptagona*, *E. virosa*, and *E. cereiformis*, in Africa, and of *E. cotinifolia*, in Brazil. Also the Nourali or Caruna poison, derived from *Strychnos toxifera*, by the savages of Guiana, and the Tschittich poison, prepared by the Javanese from *Strychnos Tieuté.* Also the poisonous juice of *Hippomane Mancinella.*

Poison-Bay. See *Illiceum.*

Poison-Berry. A name given to several species of *Cestrum.*

Poison-Bulb. Asiatic. *Crinum Asiaticum.*

Poison-Bulb. Cape. See *Buphane.*

Poison-Dogwood or **Poison-Sumach.** See *Rhus venenata.*

Poison-Hemlock. See *Conium.*

Poison-Ivy or **Poison-Oak.** See *Rhus toxicodendron.*

Poison-Oak. Californian. *Rhus diversiloba.*

Poison-Plant. *Vincetoxicum officinale.*

Poison-Tree. Jamaica. *Rhus arborea.*

Poisonous Plants. Of the 100,000 known flowering plants it is stated that 10,000 may be considered as deleterious, all being more or less energetic in their action, and of these, probably fifty are deadly. It is a singular, but generally understood fact, that all plants having green flowers are poisonous, either in their leaves, stems, seeds, or roots. The famous Upas Tree of Java does not affect the atmosphere as is commonly supposed, but its juice is the part which does the harm. Large tracts of land in Java are barren owing to certain

poisonous vapors rising out of the earth, and the early Dutch settlers attributed the barrenness to the influence of the Upas Tree. The Manchineel, a plant of the West Indies, gives off a vapor which is poisonous, and in consequence it is never found in cultivation. The Dumb Cane, also of the West Indies, is very energetic in action, and will produce lockjaw on being applied to the lips. Many other plants such as *Aconitum napellus, Atropa Belladonna, Veratrum viride, Paris quadrifolia, Ricinus communis, Manihot utilissima, Rhus Toxicodendron, R. venenata*, and many others are poisonous. These dangerous qualities are generally mentioned in this work.

Poi'vrea. Named after *M. Poivre*, a French botanist. Nat. Ord. *Combretaceæ*.

A small genus of green-house evergreen climbers of great beauty, The flowers are white or scarlet, produced in terminal or axillary panicles. They are natives of Africa and the East Indies, and they require the warmer part of the green-house and a humid atmosphere. They were first introduced in 1820, and are propagated by cuttings. This genus is included by Bentham and Hooker under *Combretum*.

Poke. Indian. See *Veratrum viride*.

Poke-Root. A common name for *Veratrum viride*.

Poke Weed. Virginian. See *Phytolacca decandra*.

Polani'sia. From *polys*, many, and *anisos*, unequal; many stamens of unequal lengths. Nat. Ord. *Capparidaceæ*.

A genus of hardy, free-flowering annuals, allied to *Cleome*, chiefly natives of the East Indies. *P. graveolens* is common in the New England States. None of the species has sufficient beauty to warrant its introduction into the flower border.

Polar Plant. *Silphium laciniatum*.

Polemonia'ceæ. A natural order of erect or twining plants, found chiefly in temperate countries, and abounding in northwestern America. Most of them have showy flowers. *Phlox, Cobœa, Gilia*, and *Polemonium*, are examples of the genera, of which about ten are known, comprising upwards of one hundred species.

Polemo'nium. Greek Valerian. From *polemos*, war; Pliny says this plant gained its name from having caused a war between two kings, each of whom claimed the honor of having first discovered its virtues. Nat. Ord. *Polemoniaceæ*.

An extensive genus of hardy herbaceous perennials. They are well-known border plants, that have long been under cultivation. Flowers are mostly blue and white, produced in large terminal heads. The species are common throughout the Northern States and northern Europe. *P. cæruleum*, derives its common name of Jacob's Ladder from its beautiful pinnately-cleft leaves. It is found in moist places throughout New York and New Jersey, and is a favorite border plant. *P. confertum* is a late addition to the cultivated kinds from the Rocky Mountains, and is one of the finest of the genus. The color is a deep blue, very attractive, and the plant is quite distinct from any other. It requires plenty of moisture in summer, and is perfectly

hardy. All the species are propagated readily by division, or from seed, which should be sown in June to flower the coming season.

Polia'nthes. The Tuberose. From *poly*, many, and *anthos*, a flower; an abundance of flowers. Nat. Ord. *Amaryllidaceæ*.

This interesting genus is composed of two species, both properly green-house evergreen perennials. One of the species, *P. gracilis*, a native of Brazil, with pale yellow flowers, is but little known, and has but little merit. The well-known species, *P. tuberosa*, is a native of the East Indies, from whence it was introduced early in the sixteenth century. The first account given of the Tuberose is in L'Ecluse's "History of Plants," where it appears that it was brought from the East Indies by Father Theophilus Minuti, a Catholic missionary, about the year 1530, who grew it at Boisgencier, near Toulon. Bernard Paludanus, a distinguished physician at Rome, grew it in 1594, having obtained the roots from the priests, who had, previous to that date, refused all applications for it. This was the single kind. The same, with variegated foliage is mentioned at nearly as early a date. Parkinson, in that rare old book, his "Garden of Pleasant Flowers," published in 1629, gives a description of it by its then known name, which should not be lost. We quote in full, as it is quite as amusing as instructive: "*Hyacinthus Indicus major tuberosa radice*, 'the Greater Indian knobbed Jacinth.' I have thought fittest to begin with this Jacinth [Hyacinth], both because it is the greatest and highest, and also because the flowers herof are in some likenesse neare unto a Daffodille, although his roote be tuberous, and not bulbous, as the rest are. This Indian Jacinth hath a thicke knobbed roote (yet formed into several heads, somewhat like unto bulbous roots), with many thick fibres at the bottom of them; from the divers heads of this roote arise divers strong and very tall stalkes, beset with divers faire, long and broad leaves, joyned at the bottome close unto the stalk, where they are greatest, and smaller to the very end, and those that grow higher to the toppe, being smaller and smaller. The toppes of the stalkes are garnished with many faire, large, white flowers, each wherof is composed of six leaves, lying spread open as the flowers of the white Daffodille, with some short threads in the middle, and of a very sweet scent, or rather strong and headee." The double-flowering Tuberose was obtained from seed by Mons. Le Cour, of Leyden, in Holland (date unknown), who for many years would not, under any circumstances, part with a root, even after propagating in such quantities as to give him a surplus. He would cause every tuber to be cut in pieces and destroyed, in order to have the monopoly, and to be the only possessor of the flower in the world. The recently introduced variety, known as the Pearl, is a sport, having originated on the grounds of Mr. John Henderson, of Flushing, L. I. Its strong habit of growth and dark, heavy foliage attracted Mr. Henderson's attention, causing him to give it every chance for perfect development. The result was a variety far superior to the parent, both in size and number of flowers, with a marked superiority in habit of growth, the flower-stalks not being so tall by

nearly a foot as the original, a feature making it invaluable for green-house culture. The Tuberose delights in a strong, rich soil, deep and moist. Manure, heat and water are essential to its perfect development. For cultivation in the open border, the bulbs should be planted about the first of June, covering the tuber about one inch with light, fine soil. No other care is needed than that usually given garden plants. The only care required is in the selection of the bulbs, which, if kept moist and cool during the winter, are liable to rot away in the centre, rendering them worthless for flowering. Perfect tubers will always be green at the top, or at least sufficiently so to show signs of life; and in choosing, all others should be rejected. Forcing the Tuberose, so as to have the flowers from January to March, is an exceedingly difficult operation, and is now but little attempted here. The plant being of tropical origin, to have it at all times in a growing state requires a high temperature—not less than an average of 80°; consequently, few ordinarily-heated green-houses or private sitting-rooms are at a temperature high enough to insure the continued and uninterrupted growth necessary to the production of flowers in the dark winter months. It is, however, comparatively easily forced so as to produce flowers during April, May and June, and again, by retarding the bulbs, during November and December. By the first method the bulbs are, about the first of January, placed closely together in boxes three inches deep, having two inches or so of damp moss in the bottom. These boxes are placed in some warm spot, where the temperature will average 75°. If for green-house culture, the best place is on the hot water pipes. In about four or five weeks the Tuberoses will have rooted all through the moss, and they should then be potted in four or five inch pots, or planted in a bench of soil four or five inches deep, and kept in a temperature at no time less than 75°, and flowers will be had in abundance in April. For succession crops, place the dry bulbs in moss, at intervals of three or four weeks. The last crops will usually be the best, as by May and June the temperature will have increased, and less artificial heat will be required. If flowers are wanted during November and December, the retarding process alluded to is resorted to. This is done by selecting such bulbs as are wanted (care being taken to use only such as are sound and firm), and placing them in some cool, dry place until the middle of August, when the first crop may be planted, either in pots or in a bench of the green-house, as described above for the spring crop. This planting will produce a crop by November. For the succession crop for December, planting must be delayed until the middle of September. The same high temperature is indispensable as in the spring crop, namely, an average of 75°. The variety best for forcing is the "Pearl," which grows only about half the height and has flowers nearly twice the diameter of the old sort; but for planting in the open ground in the ordinary way, when the flowers are only wanted for fall, the common double variety is the best; as, being less full, the flowers open better under the often unfavorably dry atmosphere that we have in October. Tuberoses, are often forwarded, so

as to be got in flower in the earlier fall months, in sections of the country where the season is too short. This is done exactly in the way recommended for the spring forcing—by starting the bulbs in damp moss; but for this purpose the dry bulbs should not be placed in the moss until the middle of May. By the middle of June, when the weather has become warm, and they are set out, they will start to grow at once, and will in this way flower from three to four weeks earlier than if the dry bulb had been put in the open ground, cold as it is in most of the Northern States in May. Of course it will be understood that when the dry bulbs are placed in the moss to start it must be in a green-house, or in some place where the thermometer will average 75° or 80°, or they will not start at all, or, at least, very feebly. It will thus be seen, from the foregoing remarks, that it will be utterly useless to attempt to grow Tuberoses at any season unless in a tropical temperature, which at no time should be less than 75°. Many growers of this flower have been sadly disappointed in the results, their flowers coming single instead of double, and they naturally ask the cause. We can only say, there is a tendency in all sports and hybrids to return to the original or type, and this plant is no exception to the rule. The conditions of growth may have much to do with it. We have known large stocks that were wholly double one year to come nearly all single the next. We cannot satisfactorily account for it, and only know that the annoyance is common in every place where they are grown. From a very close observation, we believe much is due to poor cultivation, and the best remedy is to be found in giving them a very rich soil and good cultivation. Like many other plants, we have found they do best when given a rotation of soil. The beautiful variegated variety before mentioned, its leaves beautifully striped white and green, is in cultivation, and is an excellent plant for groups in the mixed border, and more especially as forming a distinct variegated row in a ribbon border in contrast with Coleus, etc.

Politus. Having a polished appearance, as the coat or shell of many seeds.

Pollen. The powdery or other matter usually contained in the cells of an anther, by whose action on the stigma the fertilization of the ovules is accomplished. POLLEN CELLS are the cavities of an anther, in which the pollen is formed; POLLEN GRAINS, or granules, the separate particles of pollen, and POLLEN TUBES, membraneous tubes emitted by pollen, and conducting the fluid which the pollen secretes down the style.

Pollinia. Pollen-masses.

Pollination. A term used to designate the dusting of the stigma of a flower with the pollen-grains, as distinguished from fertilization or the action of the pollen upon the ovule, which gives rise to the development of the seed containing an embryo.

Poly. In Greek compounds signifying numerous.

Polya'nthus. An umbellate-flowered variety of *Primula vulgaris*, probably derived from a cross between the Primrose and Cowslip; cultivated as a garden or florist's flower.

Polya'nthus Narcissus. See *Narcissus.*

Polybo'trya. From *poly*, many, and *botrys*, a raceme; the appearance of the fertile or seed-bearing frond. Nat. Ord. *Polypodiaceæ.*

An extensive genus of tropical Ferns, some of which are very ornamental, and all requiring green-house treatment. They are mostly natives of the West Indies, whence they were first introduced in 1823, and are propagated by division or by spores. By some botanists, this genus is now included under *Acrostichum.*

Polycaly'mna. From *poly*, many, and *kalymna*, a covering; in allusion to the numerous series of involucral bracts. Nat. Ord. *Compositæ.*

P. Stuartii, the only species, is a very singular low-growing plant with flat, roundish, white flower heads, an inch or more in diameter. It is a native of Australia. Bentham and Hooker include this plant under *Myriocephalus.*

Poly'gala. Milkwort. From *poly*, much, and *gala*, milk; reputed effects of the plant on cattle that feed upon it. Nat. Ord. *Polygalaceæ.*

An extensive genus of hardy annuals, herbaceous perennials, and green-house perennials, found inhabiting nearly all countries. *P. Myrtifolia grandiflora* (syn. *P. Dalmasiana*), and *P. oppositifolia*, are valuable spring-flowering green-house shrubs, while *P. vulgaris* and its varieties, and our native *P. paucifolia* are beautiful subjects for the rock-garden. *P. Senega*, Seneca Snake Root, is a species common in the Middle and Western States, and has considerable reputation for its medicinal properties.

Polygala'ceæ. A natural order of shrubs or herbs, occasionally twining, found in all quarters of the globe. The flowers have a resemblance to *Papilionaceæ*, from which they are distinguished by the odd petal being inferior, and the sepal superior. They are generally bitter, and their roots yield a milky juice. *Polygala*, *Monnina*, and *Trigonia*, are examples of the genera, of which there are about fifteen, and about four hundred species.

Poly'gamous. Having on the same plant some flowers that are male, others that are female, and others hermaphrodite or perfect.

Polygona'ceæ. A natural order of herbaceous, rarely shrubby plants, found in almost all parts of the world, more especially in the temperate region of the Northern Hemisphere. *Fagopyrum esculentum* (Buckwheat), and *Rheum officinale* (Rhubarb), are both important economic plants of the order, which contains thirty genera, and about six hundred species.

Polygona'tum. Solomon's Seal. From *poly*, many, and *gonu*, a joint or knee; referring to the numerous joints of the stem. Nat. Ord. *Liliaceæ.*

A small genus of very handsome, hardy herbaceous plants, of easy culture and graceful habit, not often seen in the borders, but deserving a place in every collection of hardy plants. *P. multiflorum*, a native of Great Britain, grows from two to three feet high, and has a stout stem, the lower part bare of leaves; the upper gracefully recurves, and produces from the axils of its broad leaves numerous green and white flowers, in clusters of two to four. *P. giganteum*, a native of the Western States, is a species of similar habit, but with smaller flowers. They thrive well in almost any soil or situation, but prefer one that is shady and moist. They are readily increased by root division, or from seeds.

Polycarpæ'a. From *poly*, many, and *karpos*, a fruit; alluding to the numerous seeds. Nat. Ord. *Illecebraceæ.*

A genus of annual or perennial plants, natives of tropical and sub-tropical regions, one being widely dispersed over tropical America. The species are of easy culture, but are not much known to cultivation.

Poly'gonum. From *poly*, many, and *gonu*, a joint or knee; referring to the numerous joints of the stem. Nat. Ord. *Polygonaceæ.*

A very extensive and widely-distributed genus of hardy plants, many of which may be properly classed as weeds. *P. hydropiper* is our well-known Smart Weed. *P. orientale* is the Ragged Sailor or Prince's Feather of the old gardens, which has escaped from the garden in some places and established itself in the fields. *P. cuspidatum* (syn. *P. Sieboldii*) and *P. sachalinense*, both hardy perennial sorts, are very ornamental, especially when grown as isolated specimens. *P. filiforme variegata*, is also a favorite hardy sort, its large, drooping, oblong leaves being finely splashed or marbled with pale green and yellow. It is a comparatively late introduction from Japan. *P. amplexicaule* var. *oxyphyllum*, happily named the "East Indian Mountain Fleece," a native of the Himalayas, introduced about 1879, forms a beautiful spreading bush about three feet high, with cordate, lanceolate leaves, and very numerous small white flowers arranged in axillary and terminal panicled racemes. The beautiful little drooping basket plant known as *P. complexum*, is now placed under *Muehlenbeckia*, which see. *P. capitatum* is a charming little annual of a spreading habit, with oval grayish-green leaves, with a dark blotch in the centre of each, and numerous globose heads of pink flowers. *P. alpinum*, a native of the Swiss Alps, grows three to four feet high, with an abundance of pure white flowers, very serviceable when quantities of cut flowers are in request. Several other species are in cultivation and are much esteemed for their hardiness, graceful habit, and general useful qualities. Propagated by division or by seeds.

Poly'mnia. A genus of *Compositæ*, comprising about a dozen species of rather coarse looking plants with yellow flowers, natives of America. Several of the species are much used for sub-tropical gardening in England. *P. edulis* is cultivated in the Andean region for the sake of its edible tubers.

Polymo'rphous. Where a part of, or an entire species, is subject to considerable diversity of form; assuming various forms.

Polype'talous. Having many separate or distinct petals.

Polypodia'ceæ. A natural order of Ferns comprising nearly all that are known, the other orders, *Marattiaceæ* and *Ophioglossaceæ*, being of very limited extent. Their chief distinguishing peculiarity consists in the presence of an elastic jointed ring nearly surrounding the spore-cases, hence called Annulate Ferns, while the other two families,

PODOLEPIS GRACILIS.

POLIANTHES (DOUBLE TUBEROSE).

POINSETTIA (DOUBLE).

PERILLA NANKINENSIS.

POLYGONUM ORIENTALE VARIEGATUM.

POLYGONUM AMPLEXICAULE, VAR. OXYPHYLLUM (MOUNTAIN FLEECE).

POLYGONATUM.

POTENTILLA (SINGLE).

POTHOS AUREA.

POTENTILLA (DOUBLE

POLYSTICHUM ARISTATUM VARIEGATUM.

PORTULACA GRANDIFLORA FL. PL.

PORTULACA (SINGLE).

Marattiaceæ, etc., in which the ring is absolutely wanting, are called Exannulate.

Polypo'dium. Polypody. From *poly*, many, and *pous*, a foot; referring to its numerous root-like feet. Nat. Ord. *Polypodiaceæ*.

A very extensive and interesting genus containing many hardy and robust growing native species, as well as the most delicate and choice of the cultivated Ferns. It includes plants of two different modes of growth, each series comprising a number of species of different kinds of venation, and from all climates. The sori is round, rarely oblong, and is borne on the back of the lobes of the frond. The following may be selected as among the best known and most largely cultivated of the green-house sorts. *P. angustatum*, *P. argutum*, *P. aureum* (syn. *Phlebodium aureum*), *P. Billardieri*, *P. Brownii*, *P. Catharinæ*, *P. crenatum* (syn. *Goniophlebium*), *P. Cyatheæfolium*, *P. decurrens*, *P. dilitatum*, *P. Fraxinifolium*, *P. glaucophyllum*, *P. Henchmanni*, *P. Juglandifolium*, *P. lingua* (syn. *Niphobolus*), *P. lucidum*, *P. macrodon*, *P. morbillosum*, *P. Paradiseæ*, *P. pectinatum*, *P. plumosum*, *P. Phyllitidis*, *P. subauriculatum*, *P. vacciniifolium*, and many others. Of the hardy species the following will be found most useful for the Fernery or rock-garden, especially as some of them are evergreen. *P. achrostichoides*, *P. alpestre* (a species much resembling the Lady-Fern, *Asplenium Filix-Fœmina*), *P. Californicum*, *P. Dryopteris*, *P. Phegopteris*, *P. trichodes* (syn. *Lastræa tenericaulis*), and *P. vulgare*, with its many elegant varieties, *P. v. cambricum*, *P. v. elegantissimum*, etc. This genus has been so divided up by various botanists that it is hard to tell under which genera to find the various species. The following genera, with some others, are now by many botanists included under Polypodium, Aglaomorpha, Campyloneuron, Cryptosorus, Dictymia, Dictyopteris, Drynaria, Goniophlebium, Goniopteris, Lepicystis, Microgramme, Niphobolus, Phegopteris, Phlebodium, Phymatodes, Pleopeltis, Pseudathyrium, etc. The various species require good drainage and plenty of water while growing, with a temperature proportionate to that of the country from which they have been introduced. They are all easily increased by division, or from spores.

Polypody. See *Polypodium*.

Polypo'gon. Beard Grass. From *poly*, many, and *pogon*, a beard. Nat. Ord *Graminaceæ*.

A small genus of handsome grasses, sparingly met in the older settled parts of this country, having become naturalized from Europe. They have no agricultural value.

Polyse'palous. Having many separate sepals.

Polysta'chya. From *poly*, many, and *stachys*, a spike; alluding to the inflorescence of some of the species. Nat. Ord. *Orchidaceæ*.

A genus of about forty species of epiphytal Orchids, natives of Africa, India, the Malayan Archipelago, and tropical America. This is an interesting genus much resembling, and requiring the same treatment as *Burlingtonia*. *P. bracteosa*, *P. hypocrita*, and *P. rufinula*, are the best known and most desirable species.

Poly'stichum. From *poly*, many, and *stichus*, a row; numerous rows of spore cases. Nat. Ord. *Polypodiaceæ*.

PON

A genus of Ferns, formerly included in *Aspidium*, and requiring the same general treatment.

Poly'xena. Named after *Polyxena*, the daughter of Priam. Nat. Ord. *Liliaceæ*.

A genus of South African bulbous plants, now included by some as a section of *Massonia*. *P. odorata*, and *P. pygmæa*, the only species of interest, have small white, deliciously, sweet-scented, Hyacinth-like flowers in dense corymbs. They are cultivated more for curiosity than for their beauty.

Poma'ceæ. A natural order included under *Rosaceæ*.

Pomade'rris. From *poma*, a lid, and *derris*, a skin; alluding to the membraneous covering of the capsule. Nat. Ord. *Rhamnaceæ*.

A genus of erect, branching, woolly shrubs, natives of Australia and New Zealand, with star-like hairs and alternate, entire, or toothed leaves. Several species are in cultivation, producing a profusion of small yellowish-brown or whitish flowers. *M. apetala*, forms a small tree, and yields a close-grained wood, called Cooper's wood, and Victorian Hazel.

Poma'ria. Named after *Pomar*, a Spanish physician. Nat. Ord. *Leguminosæ*.

A genus of green-house shrubs, mostly South American. *P. glandulosa*, with yellow flowers in axillary racemes, is the only introduced species. This genus is now included by Bentham and Hooker under Cæsalpinia.

Po'max. From *poma*, an operculum or lid; referring to the operculum of the fruit. Nat. Ord. *Rubiaceæ*.

P. umbellata, introduced from Australia in 1826, is an interesting green-house shrub, with greenish white flowers. It is often found in cultivation under the name of *P. hirta*, or *Opercularia umbellata*.

Pome. A fleshy, many-celled fruit, as an Apple.

Pomegranate. See *Punica granatum*.

Pond Lily. See *Nymphæa*.

Pond Weed. The genus *Potamogeton*.

Ponga'mia. Pongam is the Malabar name of *P. glabra*. Nat. Ord. *Leguminosæ*.

P. glabra, the only described species, is an evergreen, green-house shrub with white flowers, which have a showy red calyx, and are borne in loose axillary racemes, three to five inches long. From the seeds of this tree an oil called Kurungi or Poonga Oil, is extracted in India, which is largely used by the poor classes for burning.

Pontede'ria. Pickerel Weed. Named after *J. Pontedera*, Professor of Botany at Padua. Nat. Ord. *Pontederiaceæ*.

A genus of native aquatic plants, common in the borders of ponds or creeks. *P. cordata*, our common Pickerel Weed, is a beautiful plant, with arrow-shaped leaves, producing, in July, long spikes of intense blue flowers. This species can be grown easily in tubs on the lawn, in the same manner as the common Water Lily (*Nymphæa odorata*). This genus is now placed under *Eichhornea*, by some authors.

Pontederia'ceæ. A small natural order of erect or floating aquatic herbs, mostly natives of America. It comprises four genera, *Eichhornea*, *Heteranthera*, *Monochoria*, and *Pontederia*, and over thirty species.

PON

Ponthei'va. Named in honor of *M. de Ponthieu*, a French West India merchant who sent a number of plants to Sir Joseph Banks. Nat. Ord. *Orchidaceæ*.

A curious genus of stove-house terrestrial Orchids, with tufted roots, dispersed over the warmer parts of America, from the southern United States as far as Brazil. They are but little cultivated and require to be kept dry when not in a growing state.

Poor-Man's Weather-Glass. *Anagallis arvensis.*

Pop Corn. A variety of *Zea Mays.*

Pope's Head. A common name for *Melocactus communis.*

Poplar. The common name of the genus *Populus.*

Athenian. *Populus græca.*
Berry-bearing. *Populus molinifera.*
Black. *Populus nigra.*
Californian. *Populus trichocarpa*, and *P. Fremontii.*
Carolina. *Populus molinifera.*
Downy. *Populus heterophylla.*
Gray. *Populus alba*, var. *canescens.*
Lombardy. *Populus fastigiata.*
Ontario. *Populus balsamifera*, var. *candicans.*
Queensland. *Carumbium populifolium.*
Rocky Mountain. *Populus angustifolia.*
Soft or Paper. *Populus grandidentata.*
Western. *Liriodendron Tulipiferum.*
White. *Populus alba.*
Willow-leaved. *Populus nigra*, var. *Salicifolia.*
Yellow. *Liriodendron Tulipiferum.*

Poppy. The popular name of the genus *Papaver.*

Alpine. *Papaver alpinum.*
Blue Himalayan. *Meconopsis aculeata.*
Blue. Wallich's. *Meconopsis Wallichii.*
Californian. *Platystemon Californicus*, and the genus *Eschscholtzia.*
Carnation. A variety of *Papaver somniferum.*
Cathcart's. *Cathcartia villosa.*
Caucasian. Scarlet. *Papaver umbrosum.*
Celandine. *Stylophorum diphyllum.*
Corn. *Papaver Rhœas.*
"Frothy." *Silene inflata.*
Golden. *Papaver croceum.*
Horned. *Glaucium luteum.*
Iceland. A variety of *Papaver nudicaule.*
Mexican or Prickly. *Argemone Mexicana.*
Opium. *Papaver somniferum.*
Oriental. *Papaver orientale.*
Pæony. A variety of *Papaver somniferum.*
Plume. The genus *Bocconia.*
Sea Side. *Glaucium luteum.*
Tree. *Dendromecon rigidum.*
Welsh. *Meconopsis Cambrica.*
Yellow Arctic. *Papaver Nudicaule.*

Poppy-Mallow. The genus *Callirrhoe.*

Po'pulus. Poplar. Some derive the word Populus from *paipallo*, to vibrate or shake; others suppose it obtained its name from being used in ancient times to decorate the public places in Rome, where it was called *Arbor Populi*, or the tree of the people. Nat. Ord. *Salicaceæ.*

A genus of deciduous trees that attain a considerable height, natives of temperate climates of both hemispheres. They are mostly of rapid growth, furnishing timber of a soft, inferior quality. Among the best known and most commonly grown for ornamental and shade trees are *P. fastigiata*, the Lombardy Poplar; *P. tremuloides*, American Aspen; and *P. balsaminifera candicans*, Balm of Gilead. Of this species there is a very old specimen at Newburgh, N. Y., supposed to be one of the largest in the United States. It is a tree of magnificent proportions. It is over one hundred years old, and the trunk is nearly ten feet in diameter. It is one of the attractions of that city. The Cotton Wood of the Middle and Southern States is *P. molinifera*; the California Cotton-wood is the common name of *P. Fremontii.*

POR

Pora'na. Said to be the native name in the East Indies. Nat. Ord. *Convolvulaceæ.*

A genus of twining, slender shrubs or annuals, natives of the East Indies, the Malayan Archipelago, and Australia. Of *P. racemosa*, introduced from India, in 1823, C. B. Clarke says: "This is the 'Snow-creeper' of the English, one of the most beautiful of Indian plants, the masses of dazzling white flowers resembling snow-patches in the jungle." Syn. *Dinetus.*

Poranthe'ra. From *poros*, a pore or opening, and *anthera*, an anther; the anthers open by pores. Nat. Ord. *Euphorbiaceæ.*

A genus of ornamental green-house Australian plants, only one of which, *P. ericifolia*, is yet in cultivation. Its numerous white flowers are borne in pedunculate racemes, forming a dense, terminal, leafy corymb. It was introduced in 1824, and is increased by seeds.

Pores. Apertures in the cuticle, through which transpiration takes place, or apertures in the anthers through which the pollen is ejected.

Porlie'ria. Named after *Andrew de Porlier*, a Spanish botanist. Nat. Ord. *Zygophyllaceæ.*

A small genus of rigid shrubs with spreading woody branches, natives of Texas, Mexico, and South America. *P. hygrometrica*, the only introduced species, is a most curious, as well as ornamental shrub, the leaves of which remain open in serene weather, and contract before rain. It was introduced from Peru in 1820, and is propagated by cuttings.

Porophyllus. Having porous leaves.

Porphyreus. Of a warm reddish color.

Po'rtea. A genus formed to include a few species of *Bromeliaceæ*, formerly placed under *Billbergia* and *Æchmea.*

Portenschla'gia. This genus is now included with *Elæodendron.*

Portla'ndia. Named after a *Duchess of Portland*, a distinguished patroness of botany. Nat. Ord. *Rubiaceæ.*

A small genus of green-house evergreen shrubs, natives of the West Indies and Brazil. They are rarely met in our green-houses, which is to be regretted, as their flowers are splendid; they are long, pure white, trumpet-shaped, borne in axillary clusters of from two to four each. *P. platantha*, with pure white flowers, introduced from Brazil in 1849, is of dwarf habit, and is nearly a constant bloomer. They all require a warm house, and are propagated by cuttings of young wood. Several other species with scarlet or white flowers are in cultivation.

Portugal Laurel. *Cerasus Lusitanica.*

POR

Portugal Quince. *Cydonia vulgaris Lusitanica.*

Portula'ca. From *porto*, to carry, and *lac*, milk; the juicy nature of the plants. Nat. Ord. *Portulacaceæ.*

An extensive genus of hardy annuals, mostly natives of South America. Many of them are exceedingly showy and useful plants for the border. The genus also contains some of our most troublesome weeds, among which is *P. oleracea*, common Purslane. *P. grandiflora* is the parent of our many garden varieties. It is a native of Chili, from whence it was introduced in 1827. The double varieties are of German origin. We quote from "Hovey's Magazine" an excellent article on this plant: "The double varieties are, in fact, charming objects, and may well claim a prominent place among the novel things of recent introduction. The flowers are perfectly double, about the size of a silver dollar, and a bed of them in full bloom presents a gay appearance, not unlike that of the beautiful Ranunculuses, or the little Burgundy Rose, so that the Germans call them 'Portulaca Roses.' The Portulacas need a warm and rather light soil and a dryish situation to flower well. They need not be planted early, unless in a frame or hot-bed, as the seed will not grow freely till the ground is warm. About the middle of June the plants begin to appear in the open ground, and grow with great rapidity, soon covering a large bed, and making a dazzling display, with their many-hued flowers, from July to frost. The seeds saved from double varieties, like all other double flowers, cannot be relied upon with certainty to produce all double flowers, but the largest part of them will be double, and the single sorts may be pulled up and thrown away or transplanted, unless it is desired to retain them in the same bed with the double kinds."

Portulaca'ceæ. A natural order of more or less succulent herbs or shrubs, found in various parts of the world, chiefly, however, in South America and at the Cape of Good Hope, and generally in dry, parched places. The order contains eighteen genera, of which *Portulaca*, *Calandrina*, *Claytonia*, and *Talinum*, are examples, and about one hundred and fifty species.

Portulaca'ria. So named from its resemblance to *Portulaca*. Nat. Ord. *Portulacaceæ.*

P. Afra, the Purslane-tree, introduced from Africa in 1732, is a green-house evergreen shrub, with small, pink flowers and opposite, obovate, fleshy leaves. Young cuttings taken off and dried for a few days, and then potted, will root freely.

Posoque'ria. *Aymara posoqueri* is the name of *P. longiflora* among the natives of Guiana. Nat. Ord. *Rubiaceæ.*

A small genus of shrubs or low-growing trees, natives of the West Indies and Guiana. They are remarkable for their very long, white, hanging flowers, the corolla of which is funnel-shaped, with a very long tube, a hairy throat, and a five-parted limb. One or two of the species are to be found in collections of rare plants. *P. revoluta* is one of the best, and should be grown in the hot-house. *P. longiflora*, with white flowers six inches long, borne in corymbs six to twelve flowered, is also a very showy variety, and is not so often met with as it deserves. They were first introduced about 1820, and are easily increased by cuttings.

POT

Potamoge'ton. Pond Weed. A large genus of submersed or partially floating aquatics; over twenty of which are natives of this country. They are of no horticultural value.

Potato. *Solanum tuberosum.* The early history of this important plant, as well as the various stages of its development from a tuber not much larger than a marble, watery and comparatively tasteless, to the present great staple of food, is very obscure. The most accurate and concise account we find in the "Treasury of Botany," written by Mr. W. B. Booth, from which we quote: "The native country of the Potato, and the date of its introduction into Britain, have been subjects of much discussion. There can be no doubt of its being indigenous in many parts of South America, plants in a wild state having been found on the Peruvian coast, as well as on the sterile mountains of Central Chili and Buenos Ayres. The Spaniards are believed to have first brought it to Europe from Quito, in the early part of the sixteenth century. It afterward found its way into Italy, and from thence it was carried into Mons, in Belgium, by one of the attendants of the Pope's legate. In 1598 it was sent from Mons to the celebrated botanist Clusius at Vienna, who states that in a short time it spread rapidly throughout Germany. The first Potatoes that reached this country (England) were brought from Virginia by the colonists sent out by Sir Walter Raleigh in A. D. 1584, and who returned in 1586. They were planted on Sir Walter's estate near Cork, and were used for food in Ireland long before they were even known or cultivated in England. Gerarde had a plant in his garden at Holborn, and has given a figure of it in his *Herbal*, published in 1597, under the name of *Batata Virginiana*. He recommends the roots to be eaten as a delicate dish, and not as common food. In the times of James the First they were so rare as to cost two shillings (sterling) a pound, and are mentioned in 1619 among the articles provided for the royal household. In 1633, when their valuable properties had become more generally known, they were deemed worthy of notice by the Royal Society, which took measures to encourage their cultivation with a view of preventing famine; but it was not until nearly a century after the above date that they were grown to any extent in England. In 1725 they were introduced into Scotland, and cultivated with much success, first in gardens and afterward (about 1760), when they had become more plentiful, in the open fields. Since that period the prejudices which so long existed against their use, both in England and Scotland, have gradually vanished, and for many years past the Potato crop has been regarded as a most valuable addition to the staple commodities of life, only second in importance to the cereals." There are six tuber-bearing Solanums out of the total of seven hundred, which Bentham and Hooker estimate as distinct species. Mr. Baker's investigations in England, however, led him to believe that "all the numerous varieties had originated from *S. tuberosum.* * * * As far as climate is concerned it cannot be doubted that *S. Magelia* (or the Darwin potato as we

might suitably christen it in English) would be better fitted to succeed in England and Ireland than *S. tuberosum*, a plant of a comparatively dry climate. We have indisputable testimony that *S. Maglia* and *S. Commersoni*, yield readily an abundant supply of eatable Potatoes. What I would suggest is, that these should be brought into the economic arena, and thoroughly tested as to their economic value, both as distinct types, and when hybridized with the innumerable *tuberosum* forms."—J. G. Baker, in Linn-Soc. Journal of Botany, Vol. XX. The Sweet Potato is the root of *Batatas edulis*, of the Nat. Ord. *Convolvulaceæ*, and its history is quite as that of the common Potato. The first mention of it is said to be by an author named Pigafetta, who went to Brazil in 1519, and found it in use as an article of food by the Indians. It was soon afterward introduced into Spain, where it has been extensively cultivated ever since. Of this species there are several varieties indigenous to both the East and West Indies and South America. The Sweet Potato is extensively grown in the United States, especially in the Southern States.

Potato Oat. The popular name of *Avena nuda.*

Potato Onion. See *Onion.*

Potato, Sweet. See *Potato.*

Potato Vine. Wild. A common name for *Ipomœa pandurata.*

Potenti'lla. Cinquefoil, Five Finger. From *potens*, powerful; supposed medicinal quality of some of the species. Nat. Ord. *Rosaceæ.*

This is a large genus of very desirable hardy herbaceous plants, and it is somewhat remarkable, when their number (upward of one hundred and thirty species and varieties) and their ornamental character are considered, that so few of them are met with in gardens. The most important, however, are the fine hybrid varieties that have been obtained of late years by hybridizing a few of the showy Himalayan species, such as *P. insignis* and *P. atrosanguinea.* These two species, the former with clear yellow and the latter with deep, velvety-crimson flowers are well worth growing, as is also the beautiful rosy-pink *P. colorata*, a plant that flowers throughout the summer. The double-flowered kinds are most showy, and they possess the additional advantage of lasting in perfection a longer time than the single sorts, both on the plants and in the cut state. Among the dwarf alpine species there are some very beautiful plants that are indispensable to the rock-garden. *P. alba, P. alpestris, P. ambigua, P. calabra, P. nitida*, and *P. Pyrenaica*, are excellent species for this purpose. They grow without trouble in any tolerably good soil, and produce their scarlet, orange, yellow, crimson, and rose-colored double and single flowers in great abundance. The species are common to both hemispheres, and are propagated readily from seeds or by division. They were first introduced in 1680.

Pote'rium. Burnet. Name from *poterium*, a drinking cup, as its herbage, which has much the flavor of Cucumber, was employed in the old English drink known as "cool tankard." Nat. Ord. *Rosaceæ.*

P. sanguisorba, the only cultivated species, is a hardy perennial, indigenous to the dry, chalky hills of Great Britain. It grows from a few inches to two feet high, according to the situation. In some parts of England it forms much of the turf, which is considered excellent pasturage for sheep; it was formerly extensively cultivated as a fodder plant, but it is now but very little grown in that way. It is now used occasionally as a salad plant, the leaves having somewhat the taste and smell of Cucumbers. A variety known as Great Burnet, very similar in form, but somewhat larger, and with oval heads of purple flowers, is cultivated to a considerable extent in Germany for fodder, but it does not find much favor where clover will grow.

Po'thos. From *Pothos*, the name of a species in Ceylon. Nat. Ord. *Aroideæ.*

A genus of climbing shrubs, natives of India, China, and New Holland. They are epiphytal and have cord-like stems, sending out false roots here and there, and attaching themselves to trees. A few of the species have very handsome foliage, and are grown in the green-house for the sake of their leaves. The beautiful variegated species known in cultivation as *P. aurea*, and *P. argyræa*, are now placed under *Scindapsus.* The leaves of *P. palmata* are three feet long, and the foot-stalks four. They were first introduced in 1790, and are increased by cuttings.

Pot Marigold. See *Calendula.*

Pottery Tree. A common name applied to *Moquilea utilis.*

Potting. The first operation of potting is when the rooted cutting is transferred from the cutting bed, or the seedling from the seed box to the pot.

Almost without exception, cuttings or seedlings should be placed in pots not exceeding two and a half inches in diameter. We, in our own practice, invariably use pots two and a quarter inches in diameter at the top, and of the same depth. Rooted cuttings do much better in the smaller size, for the reason that the small amount of soil in the 2¼-inch pot allows the moisture to pass off quickly, and thus prevents the soil from becoming sodden for want of air, which would be the case if the cutting had been potted in a 3 or 4-inch pot, as amateur gardeners sometimes do. The potting of cuttings is very simple, and in commercial gardens is performed with great rapidity, average workmen doing 300 plants per hour. One of our workmen obtained almost national fame in this operation, as he had repeatedly potted 10,000 plants in ten hours, his average being 6,000 per day. The pot is filled to the level with soil, a space made with the finger in the centre of the soil of sufficient size to admit the root, which is placed in the opening thus made; the soil is closed in again by pressing with the thumbs close to the neck of the cutting, which firms the soil around the root. But when plants are required to be grown as specimens, or of larger size, they must be repotted at intervals, as the condition of their growth demands. For example, to grow a Geranium of a height of three feet and three feet in diameter, a pot of at least eight inches across at top, and eight inches in depth, would

be necessary, but it would not do to move from the 2¼-inch cutting pot to this size at once; three or four different shifts are necessary. These shifts should be made, as a general thing, not greater than from a 2¼-inch size to a 3-inch, and so on.

The time to shift a plant from a smaller to a larger pot is known by the roots beginning to show around the outer surface of the ball. It is not necessary to shift when the first roots touch the side of the pot; let them curl pretty well around the ball, but they must not be allowed to remain long enough to become hard or woody. They must be of that condition which we call "working roots," a condition not very easy to describe, unless to say that the appearance of such roots is white, soft, and succulent. In most cases the slightest tap on the edge of the pot is sufficient to turn out the ball of earth. Soil, in depth according to the size of the plant, should be placed in the bottom of the pot, the ball placed in the centre, and the soil packed moderately firm in the space, either by the fingers or by a stick made of suitable size for the purpose. When plants are first potted off, or shifted, they should be stood with the pots touching each other, if the diameter of the plant is less than that of the pot; but, as they begin to develop growth, the plants should be spread an inch or so apart to admit air between the pots; this greatly strengthens the plants, and inclines them to a stocky growth. Though we, in our own practice, use drainage in few kinds of plants except Roses, yet it is perhaps safer to the unpracticed cultivator to use it. See *Drainage*.

The amateur is warned against the common practice of placing plants in too large pots. As a general thing, when plants are received from the florist they are without pots, and are usually in a condition requiring them to be shifted into a pot larger than they have been growing in. For example, if they have been grown in a pot of three inches diameter, place them in one a size larger, or four inches in diameter; if they were in four-inch pots, give them one five or six inches across, and so on. Florists, as a rule, do not practice crocking or draining pots until the pots get to a size over four inches, and not often then, because, having pots of all sizes on hand, they do not need to give plants any larger shift than necessary, and hence there is less need for drainage; but often the amateur has to change a plant that has been grown in a pot of three inches diameter into one of six inches, and then it is necessary to fill up one-third of this too large pot with broken pots, charcoal, or some such material, to drain off the surplus moisture that would otherwise be injurious, in consequence of the pot being too large for the plant; but if the pot into which it is shifted is properly adjusted to the wants of the plant, the putting in of crocks for drainage may be dispensed with. The need of a larger pot is shown by the earth becoming so filled with roots that they will cover the outside of the ball; but shifting into a larger pot should be done while the roots are yet white. If left until the roots get thoroughly matted, brown and hard, it is too late, and the future growth will be seriously retarded. If the plant has been allowed to reach this condition, which we call "pot bound," it is best to lay the ball of roots on one hand and slap it smartly, so as to loosen it. By this treatment the new fibres strike out more readily from the hard roots than if left with the ball still compact. After shifting a plant give it one good watering, so that the soil will be thoroughly soaked to the bottom of the pot, but after that keep rather dry until there are indications of new growth. When it is inconvenient to shift winter-flowering plants into larger pots, they will be greatly benefited by stirring up the soil on the surface of the pots to a depth of an inch or so, or down to where the young roots appear, taking care not to disturb these too much. Throw away the old soil and replace by rich, fresh soil, in which one-twentieth part may be bone-dust. This is called "top-dressing." See "Winter-Flowering Plants."

Pouch. A little sack or bag at the base of some sepals and petals; the term is also applied to a sillicle or short-pod, as of the Shepherd's Purse.

Pounce. The powdered gum resin procured from *Juniperus communis*.

Pourou'ma. The native name in Guiana. Nat. Ord. *Urticaceæ*.

A genus of about thirty species of trees, natives of tropical South America. *P. edulis*, the only species of interest, has leaves green above and bluish-white beneath, as large as those of *Wigandia imperialis*, and is an excellent plant for sub-tropical decoration. The fruit, which is produced in clusters like Hazel-nuts, is much esteemed by the natives of Columbia. The genus is closely related to *Artocarpus*.

Pourre'tia. In honor of *Abbé Pourret*, a French botanist and traveller in Spain. Nat. Ord. *Bromeliaceæ*.

A genus of ornamental green-house plants, differing but little from *Billbergia*, and requiring the same management. All the species are natives of South America, and are propagated by suckers. Syn. *Dyckia*.

Pourthiæ'a. Named in memory of the French missionary *Pourthiè*, massacred in the Corea in 1866. Nat. Ord. *Rosaceæ*.

A genus established by Decaisne for a number of plants peculiar to the Himalayas, China, and Japan, long confounded with the allied genus *Photina*, which they resemble in general appearance. *P. arguta*, a native of the Himalayas from Sikkim to the Kashya Hills and to Burmah, is a graceful hardy shrub with slender spreading branches and lanceolate, or elliptical, opposite leaves, pointed at both ends, finely and sharply serrate, covered, when young, with short scattered white hairs, but becoming perfectly glabrous at maturity. The flowers are pure white, borne in flat, few-flowered, cyme-like corymbs followed by small, globose, one or two seeded pomes. The divergent habit of the branches and flower-bearing, lateral branchlets, give to this plant a peculiar and striking appearance. It flowered for the first time in this country in the Arnold Arboretum this season (1889).

Poverty Grass. See *Aristida*.

Præcox. Early; appearing or flowering earlier than other allied species.

Præmorse. Ending abruptly as if bitten off.

Prairie Clover. The genus *Petalostemon.*

Pratensis. Belonging to or growing in meadows.

Pra'tia. Named after *M. Prat-Bernon*, a French naval officer. A small genus of *Campanulaceæ*, consisting of little creeping herbaceous plants growing usually in marshy places, natives of the southern part of South America, Australia, New Zealand, and India. *P. angulata*, introduced from New Zealand in 1879, is an extremely pretty little creeper for rockwork. *P. repens*, from the Falkland Islands, is also well adapted for a like situation.

Pre'mna. From *premnon*, the stump of a tree, in allusion to the low stems of most of the species. Nat. Ord. *Verbenaceæ.*

A genus of over thirty species of tropical shrubs or trees. Few of the species are in cultivation.

Prena'nthes. From *prenes*, drooping, and *anthos*, a flower; on account of the drooping flower-heads. Nat. Ord. *Compositæ.*

A genus now restricted to a few European and Asiatic herbs. *P. purpurea*, the only species of interest common in mountainous or hilly woods in central and southern Europe, is a tall erect herb, with oblong-lanceolate, stem-clasping leaves, and a large, loose, terminal panicle of elegantly drooping purple flower-heads. It may be increased by seeds or by division.

Prepu'sa. From the Greek word, *prepo*, which means "I am handsome;" on account of the beauty of the flowers. Nat. Ord. *Gentianaceæ.*

A small genus of erect, slightly-branched green-house plants, natives of Brazil. *P. Hookeriana*, the only species yet in cultivation, has beautiful large, white and crimson flowers, and opposite, slightly fleshy leaves. It was introduced in 1839, and is increased by seeds or by cuttings of the young shoots.

Presco'ttia. Named after *John D. Prescott*, a botanist of St. Petersburg. Nat. Ord. *Orchidaceæ.*

A genus of terrestrial Orchids, natives of tropical America. Only a few species are in cultivation; they are more interesting botanically than they are beautiful.

Pre'slia. Named in honor of *C. B.* and *I. S. Presl*, of Prague, authors of "Flora Sicula" and other works. Nat. Ord. *Labiatæ.*

P. cervina, the only species, is a hardy, prostrate, perennial herb, with pale, purplish flowers, allied to *Mentha.* It is a native of the western Mediterranean region, is of easy culture in any soil, and may be rapidly increased by division.

Presto'nia. Named in honor of *C. Preston, M. D.*, a correspondent of Ray. Nat. Ord. *Apocynaceæ.*

A genus of tall climbing or twining shrubby plants, natives of tropical America. *P. venosa* has yellowish-green flowers, pale in the centre, and produced in drooping racemes. It is perhaps the only species in cultivation, and forms a pretty specimen when trained upon pillars or on a balloon-trellis. Syn. *Echites nutans.*

Pretty Face. *Calliprora* (*Brodiæa*) *lutea.*

Pricking off. This is a term used by gardeners for the process of transplanting small seedlings as soon as they are fit to handle, and

replanting them closely together, preparatory to being planted in pots or in the open ground. It is distinguished from planting proper, inasmuch as the "pricking off" process is always preparatory to the final planting. For example, when Tomatoes come up thickly in the seed bed, they must be pricked off at a distance of an inch or so apart in a hot-bed, again to be planted, either wider or in the open air. If this is not done as soon as they are fit to handle, the plants will spindle and get weak, and often will die off altogether from damping.

Prickles. Sharp elevations of the bark, coming off with it, as of the Rose.

Prickly Ash. See *Xanthoxylon Fraxineum.*

Prickly Cedar. *Cyathodes Oxycedrus.*

Prickly Comfrey. See *Symphytum.*

Prickly Pear. See *Opuntia.*

Prickly Poppy. See *Argemone.*

Pride of Barbadoes. *Cæsalpina pulcherrima.*

Pride of Columbia. *Phlox speciosa.*

Pride of India or China. *Melia Azedarach.*

Pride-weed. *Erigeron Canadensis.*

Prie'stleya. Named in honor of the celebrated *Dr. Priestly.* Nat. Ord. *Leguminosæ.*

A genus of handsome Cape plants, with brilliant yellow flowers. They grow best in very sandy loam, which must be well drained. The necessary water must be given cautiously at all times, especially in winter, when great care must be taken to keep the leaves dry, for if wetted then they die off, and thus weaken the plant. The ornamental character of the genus is sufficiently great, however, to deserve all the necessary attention. Propagated by cuttings of well-ripened wood. Introduced in 1800.

Prim. One of the common names of *Ligustrum.*

Primrose. *Primula*, especially the popular name of *Primula vulgaris.*

Primrose. Birds-eye. *Primula farinosa.*

Primrose. Cape. See *Streptocarpus.*

Primrose. Chinese. *P. Sinensis.* Syn. *P. prœnitens.*

Primrose. Evening. *Ænothera biennis.*

Pri'mula. Primrose. From *primus*, the first; in allusion to the early flowering of the plants. Nat. Ord. *Primulaceæ.*

This extensive genus includes three of the most popular and beautiful of florist's flowers, viz., the *Auricula*, the *Polyanthus*, and the *Primrose.* Of each, there are almost innumerable varieties. The Auricula, *Primula Auricula*, is a native of the Alps of Switzerland, and the mountainous countries adjoining, whence it was called, when first introduced in 1596, the Mountain or French Cowslip. It was also called Bear's Ear or Oricola, whence the modern name of Auricula. Parkinson, in 1629, enumerates twenty varieties, which he says were the best, though "many other varieties were to be found with those who are curious conservers of these delights of nature." The alpine Auriculas, though hardy in Britain, will not however, endure the rigor of our winters without protection, and as much care is needed to protect them against the sun as the cold. Notwithstanding this they may be grown easily in pots or planted out in cold

frames or in a cold green-house in the same manner as Pansies, in order that they may be better protected from storms, that destroy the powdery bloom upon the surface of the flower, its greatest feature of beauty, and also to enhance its commercial value. The Auricula is propagated by division of the root, or by cutting off slips with a portion of the root attached; but a still better plan is to sow seed in March, which make fine flowering plants the next season. We use this method exclusively. The common Primrose, *P. vulgaris* (syn. *P. acaulis*), which grows wild and abundantly in Britain and on the continent of Europe, has been a favorite with American planters for generations, and may be found taking care of itself in old-fashioned gardens for years, especially north of Massachusetts where it is protected by heavy snows all winter. F. L. Temple, of Cambridge, Mass., in a communication to "Garden and Forest," 1888, says: "I never knew it, however, to establish itself outside of the rich soil and limited space of the garden where it was given a place by man, until the past season, when I was shown a locality in Massachusetts where it took possession of a piece of pasture along the sides of a brook, and among scattered clumps of the Barberry and other shrubs. In this heavy, clayey soil it was perfectly at home, and thousands of vigorous plants were disputing successfully with grasses and weeds for a chance to live. This spot, in spring, when these beautiful blossoms are like a brilliant carpet of crimson and yellow, covering many square rods with their bloom, and peeping out of the half-shaded nooks among the wild undergrowth, is a sight to be long remembered by anyone who knows and loves this old Primrose. This is the only case, as far as I know, in which the English Primrose has become really established and capable of propagating itself permanently so far north, and it is hoped that this hardy strain of these wholly delightful blossoms may hereafter provide us with a race of these Primroses which will be really hardy throughout a considerable part of the Northern States." The Polyanthus, probably derived from a cross between the Primrose and the Cowslip, *P. officinalis* (syn. *P. veris*) has been in cultivation for many years, and is one of the most popular of Florists' flowers, especially in Britain. There are a great number of varieties from light yellow or straw color to deep maroon, with an endless variety of shades and markings. The section known as the "Gold-laced" is, however, the most admired, the flowers of which are distinguished by a clear even margin or lacing of gold, then a ground or body-color, similarly well defined, with a stripe passing through the centre of each division to the eye. The pip, as a single flower is termed, should be large, flat and round, with the exception of five or six small divisions on the margin. Besides these varieties there are others designated respectively, "Fancy" and "Hose in Hose." Fancy varieties are of various hue, the plants being of vigorous habit; and some of the Hose in Hose sorts are curious and very uncommon. *P. obconica*, a species introduced from central China in 1882 with pale lilac, almost white flowers, is a much admired species for spring and early summer flowering. Unfortunately

its leaves and flowers have, to some persons, poisonous properties similar to those of the Poison Ivy, and persons susceptible to plant poisons should handle it with caution. Many new and distinct species, among them several absolutely different from anything previously known, have of late years been introduced from the Himalayas, China and Japan, but which have not yet been cultivated enough to show if they are suited to our climate or not. *P. Sinensis* (syn. *prœnitens*), and its varieties, are extensively grown as plants for pot-culture for the sitting-room or the green-house, as well as for use in winter for cut-flowers. To get strong plants it is best to sow the seeds about March or April; the English plan of sowing in July or August will not answer well in our hot, dry climate. The seed should be sown in shallow boxes, which may be two inches or so in depth; the soil used may be good friable loam, which should be sifted fine and pressed down nicely with a smooth board, so that it is perfectly level; on this smooth level surface of soil sow the seeds thickly, and press them down into the soil, which will sink them level with the smooth surface. Next take sphagnum moss (dry refuse hops or leaf mould will also do, but moss is best) and rub it through a sieve as fine as a mosquito-wire, and sift this pulverized moss over the seed just thick enough to cover the seeds up, which will be something about the one-sixteenth part of an inch. This covering is light, and, at the same time, its spongy character keeps the seeds in the necessary condition of moisture for germination. We have found that this method for the sprouting of all seeds that are difficult of germination is excellent, so that if the seeds have any vitality whatever, germination is certain. After the Primulas have started to a full development of the seed leaf, they are "pricked off" in the same sort of shallow box that the seeds were started in, at a distance of half an inch or so apart. If this is not promptly done there is great danger of the young plants being attacked by a species of fungus, which is quickly fatal. In from four to six weeks after the young Primulas have been growing in these boxes they will be of sufficient size to be placed in two and a half inch pots; and by about this time the weather will have become warm, and the plants should be placed in the coolest place to be obtained with partial shade. If the plants will remain without shifting until September, do not shift them, as our experience has shown that they keep best through the hot summer months if rather cramped for pot room. As soon as cool weather comes in fall they begin to grow rapidly, and if judiciously shifted into larger pots as the balls become filled with roots, they will make beautiful plants from twelve to eighteen inches in diameter, which will flower in profusion from November to May. Although the double varieties are also raised from seed, yet, like nearly all double flowers, quite a proportion of the seed saved from double flowers will come single; and though many fine double flowers are thus produced, yet exact types can never be depended on from seed, so that, as a rule, the double kinds, particularly the Double White, which is the kind most valued for winter flowers, are grown exclusively from

cuttings or by division. This variety has a tendency to break into from six to twelve crowns or shoots, and the simplest way to divide these up is to fill up to the lower leaves with moss, which quickly induces the crowns or shoots to root into it, and when thus well-rooted, the plant is pulled apart and each shoot or crown separately potted. This mossing process for division may be done at any season, but it is safest during the spring or fall months: say during April and May in spring, or September and October in the fall. As the Primrose is at all times impatient of heat and disturbance of the roots, this division of the plant had better be avoided during hot weather. The first Double White Primrose was originated by John Henderson, now of Flushing, L. I., but of London in 1836, when the Double White was raised. Mr. Henderson has furnished us the following brief but interesting particulars in regard to its origin: "I raised the Double White Chinese Primrose in 1836, and exhibited it at the Horticultural Society of London in January, 1837, and was awarded the Silver Banksian Medal for it. It was raised in this way: In the winter of 1835–6 we had a fine strain of fimbriated Primulas; and in order to preserve the true stock, I selected the finest, and placed them on a shelf near the glass, and during the flowering season constantly impregnated the flowers. The seeds were sown in June, and among the seedlings were about eighteen plants that came with double flowers, both purple and white, some plain-edged, others fimbriated. The one selected as the best is that still in cultivation, and known as the Double White." A double purple, in the same style as the white, was also raised by Mr. Henderson, and is still grown. The Japan Primrose, *Primula Japonica*, is a noble species of recent introduction, bearing flowers of a deep crimson rose, arranged in from three to six whorls of many flowers each, on a strong, straight stem from one to two feet high. This plant is a favorite in England, but is worthless in our dry, hot climate. Of the genus *Primula* this country furnishes but few species, and they are of little interest to its flora. Dr. C. C. Parry found a beautiful low-growing species in the Rocky Mountains, with purple and yellow flowers. It finds its home in very high latitudes, where it is constantly watered from the melting snow. From this peculiarity it cannot be successfully grown in our houses or borders. There are many other species included in this genus, mostly interesting, but not of special importance. We only add *Primula veris*, the common English Cowslip, and *P. elatior*, the common Ox-lip.

Primula'ceæ. A natural order of herbaceous plants generally with a perennial rhizome, natives chiefly of temperate and cold regions in the Northern Hemisphere; in the tropics occupying lofty situations. The species are more remarkable for their beauty than for the little economic value they possess. *Primula*, *Androsace*, *Glaux*, and *Cyclamen*, occur amongst the genera, which are over thirty in number and comprise nearly two hundred and fifty species.

Princeps. Chief, principal.

Prince's Feather. *Amaranthus hypochondriacus*, also a common name for *Polygonum orientale*.

Pri'nos. Winter Berry. The ancient name of the Holly, which some of the species resemble. Nat. Ord. *Aquifoliaceæ*.

Very handsome berry-bearing, hardy, deciduous shrubs, common from Maine to Virginia and southward. *P. verticillata*, is the Black Alder or Winter Berry. It is covered with glossy red berries during most of the winter. *P. lævigata*, is the Smooth Winter Berry. The fruit is larger than in the preceding, and ripens earlier in the fall; but the berries are of the same glossy red. These two species are beautiful plants, especially in the winter, and are worthy of a place in the shrubbery or on the lawn. They are used in the winter for decorative purposes. *P. glabra* is the Ink Berry, the fruit of which is black. It is a less desirable plant than the species named above. Professor Gray has placed these plants in the genus *Ilex*.

Prio'nium. From *prionion*, a small saw; alluding to the serrated leaves. Nat. Ord. *Juncaceæ*.

P. Palmita, Palmiet, the native name, is a very remarkable rush, found on the banks of rivers in South Africa. It often increases to such an extent as to choke the rivers in which it grows, and produces a network of strong, black fibre, suitable for brush making; the leaves themselves are useful for plaiting and thatching.

Prismatic. Prism-shaped; having several longitudinal angles and intermediate flat faces, as the calyx of *Frankenia pulverulenta*.

Prismatoca'rpus. From *prisma, prismatos*, a prism, and *karpos*, a fruit; alluding to the long prismatic form of the fruit. Nat. Ord. *Campanulaceæ*.

A genus of green-house or hardy perennial herbs or shrubs, natives of South Africa. P. *nitidus*, the best known species, has white flowers, two to four in a cluster, towards the top of the branches. Better known in cultivation under the name of *Campanula prismatocarpus*.

Pritcha'rdia. A commemorative name. Nat. Ord. *Palmaceæ*.

A genus of Palms inhabiting California and the Sandwich Islands. The best known is *P. Pacifica*, a spineless tree with fan-shaped, deeply-cut leaves, covered with white down when young. The fruit of this Palm is described as almost like a black-heart Cherry. The leaves are used as fans and umbrellas by the chiefs, who are alone permitted to use them. In a shower of rain the leaves are so worn on the back of the head as to send the water behind the wearer. Some of the species are under cultivation. *P. filifera*, is now called *Washingtonia filifera*, which see.

Pri'va. A name of unknown meaning, given by Adanson. Nat. Ord. *Verbenaceæ*.

A genus of erect perennial herbs, with a woody or tuberous rhizome; widely distributed through tropical America, Africa and India. *P. lævis*, introduced from the Argentine Republic in 1833, is the only species of interest, but it is not much cultivated.

Privet. See *Ligustrum*.

Proboscideus. Trumpet-like; proboscis-like.

PRIMULA ELATIOR (OX-LIP).

PRIMULA SINENSIS.

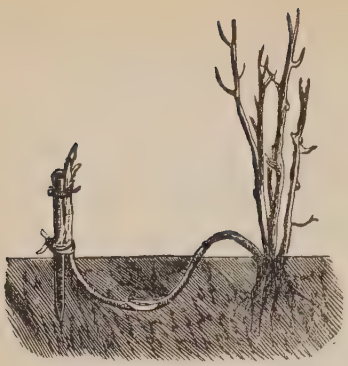
PRIMULA OBCONICA.

PRIMULA SINENSIS FIMBRIATA.

PRIMULA JAPONICA.

PRIMULA SINENSIS FILICIFOLIA.

PRIMULA VULGARIS.



PROPAGATING BY LAYERING.

PROPAGATION (SAUCER)

PRIMULA AURICULA.

POPPY (DOUBLE WHITE TIPPED WITH ROSE).

PRIMULA SINENSIS FL. PL.

PRIMULA SINENSIS SEMI-PLENA.

Procerus. Very tall.

Process. A term applied to any projection from the surface or edge of a body, whether natural or monstrous.

Procession Flower. A popular name for *Polygala vulgaris*.

Pro'ckia. A commemorative name. Nat.Ord. *Liliaceæ*.

A genus of two or three described species, probably all varieties of *P. crucis*, a beautiful yellow-flowered, very fragrant plant, introduced from the West Indies in 1825. It requires warm green-house treatment, and is propagated by cuttings of the half ripened shoots.

Procle'sia. Commemorative of *Procles*, king of Sparta. Nat. Ord. *Vacciniaceæ*.

A genus of handsome evergreen shrubs or small trees, natives of the mountains of tropical America. *P. acuminata*, with bright red flowers, covered when in bud by scarlet bracts, and *P. cordifolia*, with bright red flowers, white on the margins, are the two best known species, and were introduced from New Grenada in 1865. They are sometimes found in cultivation under the name of *Thibaudia*, but Bentham and Hooker now place this genus under Cavendishia.

Procumbent. Lying flat upon the ground.

Proliferous. A plant is said to be proliferous when it forms young plants in abundance about its roots; also when buds are formed along the edges of the leaves or otherwise.

Promenæ'a. Derivation of name unknown. Nat. Ord. *Orchidaceæ*.

A small genus of low-growing, very pretty Orchids from Brazil, formerly classed with *Maxillaria*. They are usually grown as curiosities rather than for show; their height rarely exceeds three inches.

Pronay'a. Named after *M. Pronay*, a French naturalist. Nat. Ord. *Pittosporaceæ*.

A genus of green-house evergreen climbers from Swan River. *P. elegans*, the best known species, is a showy plant with terminal clusters of pale lilac flowers. It has the habit of *Sollya*, to which it is nearly allied, but is inferior in beauty. It was introduced in 1837, and is propagated by cuttings. Syn. *Spiranthera Fraseri*.

Prone. Lying flat, particularly face downwards.

Propagation by Seeds. The most natural way of increasing plants is by seeds; and whenever it is practicable to do so, it is preferable to all others, so that in our own practice, any plant of which we can procure the seed, we rarely increase in any other way, unless, of course, in cases where particular varieties are wanted that we know will not reproduce themselves from seed, so as to be certain of color or form; but in all cases where seed taken from a variety or species will reproduce itself exactly, or in cases where a general variety is wanted, the propagation by seed is invariably practiced. As propagation by seeds refers more usually to ornamental plants cultivated under glass, we will briefly relate our own practice, which we have greatly improved during the past few years, and in which we have obtained almost unfailing satisfactory results. We have found that seeds sown in shallow boxes, from one and a half to two inches deep, can be given a far more uniform degree of moisture than when sown in earthern flower-pots or earthen seed-pans made especially for that purpose. These boxes are made from the ordinary soap box, from four to five being made from each, with the bottom boards so put on as to allow free escape of moisture, though, of course, not so wide apart as to allow the soil to wash through. If wanted in large quantities the boxes in which sheet tin is imported is exactly what is wanted. These boxes are filled with finely sifted soil, such as has been run through a sieve, as fine as mosquito netting. This surface is then made perfectly level and smooth, and the seeds sown on it as evenly as possible, and in thickness corresponding to the variety sowed, though it must be here remembered that in "union there is strength," and that, if sown too thin, weak seeds may fail to press up the soil if isolated too much. After the seeds are sown, and before they are covered, they are pressed down by a smooth board into the soil, so that the surface is again smooth and level.

The seed box is now ready for its covering. For the past year we have used finely-sifted Moss (Spaghnum) exclusively for covering. To prepare this it is rubbed through a mosquito wire sieve when dry, and sifted over the seed only thick enough to cover it, usually about one-sixteenth part of an inch. In the absence of Moss, dry refuse hops, cocoanut fibre or leaves will answer, prepared in the same manner, the great object being to use a material light in weight, having non-conducting properties, and that will thus hold the moisture uniformly. Of all these, we think Moss the best, and now use nothing else as its sponge-like character keeps just the right degree of moisture wanted. These seed boxes should be placed in the open sunlight, in the windows of the dwelling room, in the hot-bed or green-house, and never shaded, in a temperature running from 55 degrees to 65 degrees at night, with 10 degrees higher during the day; and if a proper degree of moisture is applied, say a slight sprinkling once a week, if there is life in the seed, germination is certain. As soon as the seeds are grown so as to attain the first true leaves (that is, the first leaves that show after the seed-leaves), they must be "pricked off" (which see) carefully in soft, light soil, similar to that used for the seeds, at from one to two inches apart, according to the kind. This will not only prevent them from damping off, as many of them are very apt to do, but they will be much stronger and suffer less when put into flower pots or replanted in the open ground. We prefer to replant the seedlings in the shallow boxes already described. And here we again find that if the soil is mixed with half its bulk of sifted Sphagnum we get a far better development of fibrous roots. They are more portable thus than if planted again in the soil of the hot-bed or bench of the green-house, though, of course, after planting in the boxes these are put again in the hot-bed or green-house. After the seedlings have been planted in these boxes, lightly water them and shade for two or three days.

To such as have not the convenience of a hot-bed or green-house, vegetable or flower seeds may be sown in the shallow boxes

above mentioned, and placed in the window of a south or east room, where the thermometer does not average less than sixty-five degrees. Success would be more complete, however, if panes of glass were placed over the seeds, resting on the edge of the box an inch or so from the soil. This would prevent evaporation, and render watering less necessary.

PROPAGATION OF PLANTS BY CUTTINGS. As now understood, this is a simple matter. Formerly no operation in horticulture was more befogged by ignorant pretenders, who, in writing or speaking on the subject, so warped the operation with troublesome conditions as to discourage, not only amateurs in horticulture, but inexperienced professional gardeners as well.

One of the first necessary conditions in the propagation of plants by cuttings is, that the plant from which the cutting or slip is taken must be in vigorous health. If weak or tainted by disease, failure is almost certain to result. If, for example, we wish to root cuttings of green-house or bedding plants, such as Bouvardias, Chrysanthemums, Fuchsias, Geraniums, Heliotropes, Salvias, Verbenas, etc., one of the best guides to the *proper condition* is when the cutting breaks or snaps clean off instead of bending or kneeing; if it snaps off so as to break, then it is in the condition to root freely; if it bends it is too old and though it will root, it will root much slower, and make a weaker plant than the slip that snaps off on being bent. With exceptions so few, and those of so little importance that it is hardly worth while to allude to them, cuttings of all kinds root freely from slips taken from the *young wood*, that is, the succulent growth, before it gets hardened, and when in the condition indicated by the "snapping test," as it is called. We believe we were the first to call attention to this valuable test of the condition of the cutting (snapping) in our work, "Practical Floriculture," first published in 1868. A very general idea is current, that cuttings must be cut at or below an eye or joint. The practice of this system leads undoubtedly to many cases of failure; not that the cutting at or below a joint either hinders or assists the formation of roots, but from the fact that, when a slip is cut at a joint, the shoot often has become too hard at that point, while half an inch higher up or *above* the joint, the proper condition will be found. We know that it will root even when in the too hard condition, but the roots emitted will be hard and slender, and, as a consequence, will not be likely to make a plant of the same vigor as that made from the cutting in the proper state; besides, as the hard cutting takes double the time to root, its chances of damping off from unfavorable atmospheric conditions are thus increased. With these instructions for the proper state of the cutting, we now proceed to describe the medium wherein it is to be placed, and the conditions of temperature, moisture, etc. If these are strictly followed, failure is an impossibility; for the laws governing the rooting of a slip are as certain as those governing the germination of a seed. In our own practice, when these conditions are strictly followed, failure is unknown.

The most proper condition of temperature

to root cuttings of the great majority of green-house and bedding plants is sixty-five degrees of bottom heat, indicated by a thermometer plunged in the sand of the bench, and an atmospheric temperature of fifteen degrees less. A range of ten degrees may be allowed, that is, five degrees lower or five degrees higher, but the nearer the heat of the sand can be kept to sixty-five degrees, and that of the rest of the house to fifty degrees, the more perfect the success will be.

Sand is the best medium in which to place cuttings; color or texture is of no special importance. What we use is the ordinary sand used by builders; this is laid on the hot-bed or bench of the green-house to the depth of about three inches and firmly packed down. When "bottom heat" is wanted, the flue or pipes under the bench of the green-house are boarded in so that the heat strikes the bottom of the bench, thus raising the temperature in the sand.

From the time the cuttings are inserted in the sand until they are rooted, they should never be allowed to get dry; in fact, our practice is to keep the sand soaked with water, the cutting bench being watered copiously every morning, and often, when the atmosphere is dry, again in the evening. Kept thus saturated, there is less chance of the cutting getting wilted, either by heat from the sun or from fire heat; for if a cutting once gets wilted, its juices are expended, and it becomes in the condition of a hard cutting, in the condition in which, when bent, it will not snap nor break, which has already been described. To avoid this wilting or flagging of the cutting, every means that will suggest itself to the propagator is to be used. Our practice is to shade and ventilate in the propagating house or hot-bed just as soon in the forenoon as the action of the sun's rays on the glass raises the temperature of the house to sixty-five degrees or seventy degrees. This practice of ventilating the propagating house or hot-bed is, we are aware, not in very common use; many contending that the place where the propagating is done should at all times be kept close. We have tried both methods long enough and extensively enough to satisfy us beyond all question, that ventilating and propagating at a low temperature is capable of producing a larger number of plants during the season than at a high temperature and in a close atmosphere. There need be no failures; and it has the important advantage of producing a *healthy* stock, which the close or high temperature system would fail to do in the case of many plants. We have often heard propagators boasting of rooting cuttings in five days. We are well aware that this may be done, but we are also aware that it is often done in damp and cloudy weather at the risk of the whole crop, and it must be done at a high temperature, which at all times causes the plants to draw up slender, and thus impairs their vigor.

Permitting a moderate circulation of air in the propagating house tends to prevent the germination of that spider-web-like substance which, for want of a better term, is known among gardeners as the "fungus of the cutting bench." Everyone who has had any experience in propagating, knows the baneful effects of this; how that, in one night, it will

often sweep off thousands of cuttings that a few hours before were in healthful vigor. But this dangerous enemy of the propagator requires, like vegetation of higher grades, conditions suitable to its development, which evidently are a calm atmosphere and a temperature above fifty-five or sixty degrees. Hence, to avoid this pest, we make every effort by shading, airing, and regulation of fire heat, to keep the atmosphere of the house so that it shall not exceed sixty degrees. This, of course, is not practicable when the outside temperature in the shade is above sixty degrees; but the temperature can be reduced considerably by dashing water on the pathways and other parts of the house. It is rarely, however, that the outside temperature ever exceeds sixty degrees in the shade for any length of time in the district of New York, before the middle of May, and all propagating had better be finished previous to that time, unless of tropical plants. In the fall months, about the middle of September, operations in propagating may again begin.

The temperature is prevented from rising in the house in various ways, some using canvas, or bast-mats, or painting the glass with lime or whitewash. We find the best and most convenient shading to be that formed by flexible screens made of common lath, planed and attached together like Venetian blinds, the laths being an inch or so apart; these can be quickly rolled or unrolled, and give an ever-varying modified shade, sufficiently cooling to the house, yet not darkening the cutting enough to impair its vigor. These are not unrolled in the morning until the temperature inside indicates it to be necessary, and are rolled up in the afternoon as soon as the sun ceases to shine on the glass, for it is of the utmost importance that the cuttings receive as much light as they will bear without becoming wilted. The time required by cuttings to root varies from eight to twenty days, according to the variety, condition of the cutting, and temperature. Verbenas, Fuchsias, or Heliotropes, put in proper condition, and kept without ever being allowed to wilt, will root, in an average bottom heat of sixty-five degrees, in eight days, while Roses, Pelargoniums, or Petunias will take at least double that time under the same conditions.

It is best to pot-off the cuttings at once when rooted, no matter how small the roots may be; half an inch is a much better length for them to be when potted than two inches, and the operation is much quicker performed when the roots are short than when long. But the main evils of delaying the potting-off of cuttings are, that when left too long the cuttings grow up weak and spindling, the roots become hard, and do not take as quickly to the pot. The same care is required in shading and watering after potting, nearly, as in the cutting bench; for no matter how carefully taken up, in the operation of potting the delicate roots get less or more injured and until they begin to emit roots are as nearly liable to wilt as the unrooted cuttings. Cuttings should always be placed in small pots, the best size being from two to two and a half inches wide and deep; if placed in larger pots the soil dries out too slowly, and the tender root, imbedded too long in a mass of wet soil,

rots and the plant dies. Though we generally prefer soil to be unsifted in potting large plants, yet for newly potted cuttings it is better to be sifted fine, not only that it is more congenial thus to the young roots, but also that the operation is quicker done with finely-sifted soil. After potting, the cuttings are placed on benches covered with an inch or so of sand, watered freely with a fine rose watering pot, and shaded for four or five days; by that time they will have begun to root, when no further shading is necessary. These methods of propagating by cuttings are such as are now practiced by commercial florists, but for amateurs in horticulture, or gardeners who have charge of private greenhouses, there is usually no necessity for a regular propagating house, unless the requirements for plants are unusually large, as the

"Saucer System" of Propagation will answer every purpose, and it is the safest of all methods in inexperienced hands. We were, we believe, the first to introduce this system some twenty years ago, and here repeat the directions first given in one of the horticultural journals at that time. "Common saucers or plates are used to hold the sand in which the cuttings are placed. This sand is put in to the depth of an inch or so, and the cuttings inserted in it close enough to touch each other. The sand is then watered until it becomes in the condition of mud, and placed on the shelf of the greenhouse, or on the window sill of the sitting-room or parlor, fully exposed to the sun, and never shaded. But one condition is essential to success; until the cuttings become rooted *the sand must be kept continually saturated, and kept in the condition of mud;* if once allowed to dry up, exposed to the sun as they are, the cuttings will quickly wilt, and the whole operation will be defeated. The rules previously laid down for the proper condition of the cuttings are the same in this case, and those for the temperature nearly so; although, by the saucer system, a higher temperature can be maintained without injury, as the cuttings are in reality placed in water, and will not droop at the same temperature as if the sand was kept in the regular condition of moisture maintained in the propagating bench. Still, the detached slip, until rooted, will not endure a continuation of excessive heat, so that we advise, as we do in the regular method of propagating, that the attempt should not be made to root cuttings in this way, in this latitude, in the months of June, July, or August, unless with plants of a tropical nature. When the cuttings are rooted, they should be potted in small pots, and treated carefully by shading and watering for a few days, as previously directed.

Propagation by Water. This is an old way of rooting cuttings and is a very simple and satisfactory way for amateurs to root many plants they may find difficult by any other process. The cuttings should be of well matured growth and about six joints or eyes long, two or three of which should be kept in the water which should be kept fresh and clean. The cuttings should show signs of callusing in from two to three weeks and should be well rooted in two or three weeks more, when they should be removed and potted off as ordinary cuttings, care being taken,

however, to water and shade them well for a few days. The following plants will produce roots freely by this system: Ficus elastica, Neriums, Camellias, Crotons, Dracænas, Nepenthes, and many others.

PROPAGATION BY LAYERING. Although layering may be done with the ripened wood of vines or shrubs of the growth of the previous season, yet it is preferable to use the shoots of the present year in its half green state; for example, a Rose or flowering shrub is pruned in the usual way in spring; by June or July it will have made strong shoots, one, two or three feet in length from or near the base of the plant. Take the shoot then in the left hand (after having stripped it of its leaves for a few inches on each side of where it is to be cut), keep the fingers under the shoot, and make a clean cut on the *upper part*, an inch or so in length, and to about half the thickness of the shoot, then slightly twist the "tongue" or cut part to one side. Having opened a shallow trench, fasten the branch down with a hook-peg, and cover with earth. It is a good plan to place a flat stone over the layer to prevent the soil from drying out. This plan of cutting the shoot on the *upper* side we have never seen in illustration showing the manner of layering, it being usually either on the side or under; but we have found in practice that it is much the safest plan, as the "tongue," when cut on the top part of the shoot, has far less chance to be broken off.

PROPAGATION BY LAYERING IN POTS is the process of layering shoots or runners of plants in pots, so that, when the root forms in the pot, the plant can be detached without injury to it, as the roots are confined exclusively to the soil in the pot. Layering plants in pots can be done with Roses, vines or shrubs of any kind, with always more certainty of making a plant quicker than by the ordinary way of layering the shoot in the soil. This system of propagating Strawberries has been largely practiced during the past ten years in the United States, and is now a favorite method. For details, see *Strawberry*.

PROPAGATION BY LAYERING IN THE AIR. About twenty years ago we published a method of propagating Geraniums, that we believed originated with us, and which we called, for want of a better term, "Layering in the Air." It consists in tonguing the shoots to be used as a cutting half through with a knife, as in the ordinary layering: the shoots so treated formed granulations, or "callus," on the cut surface, and was in a condition to form roots immediately on being detached and put into the earth. A year or two ago we bethought ourselves of our long forgotten plan of "layering in the air," but this time we improved upon the former way of doing it. Instead of tonguing the shoot to be used for a cutting, as before, it was merely snapped short off at a point where the condition of the shoot or slip would make it hang on to the plant by the merest shred or bark. Slight as this strip of bark is, it is sufficient to sustain the cutting, without any material injury from wilting until it forms the "callus," or granulated condition, which precedes the formation of roots. The cutting, or slip may be detached in from ten to twelve days after it had been broken in the manner described, and then potted in two or three inch pots. If watered and shaded rather less than required by ordinary cuttings, it will form roots in ten or twelve days more, and not more than two per cent. will fail. Plants of the Tricolor Geraniums, which all know are difficult to root under the ordinary modes of propagation, particularly in hot weather, do excellently by this plan.

The advantage of this method is not only that the slips root with far greater facility, but the injury to the stock or mother plants is far less than if the slips had been cut clean off instead of being only partly detached. Many other plants can be thus propagated with safety, notably Begonias, Petunias, Poinsettias, and such plants, the cuttings of which have a tendency to damp in hot weather.

PROPAGATION BY LEAVES. Many plants are increased rapidly by this system; young plants appearing on the mid-ribs, and along the edges. The leaves which are intended for this purpose should be fully grown, and what florists term, well hardened; place the leaf on clean sand and peg it down, placing a little sand on the top of the leaf; numerous young plants will spring up in the course of three to four weeks, when they can be taken off separately and potted. Another mode of increasing plants by leaves is to cut the leaf in triangular pieces with a rib or two of the leaf included, and place in sand as you would a cutting. The following plants are easily propagated in this manner: Gloxinias, Sedums, Cactus, Hoyas, Begonias, and many others, which have similar leaves to the above.

PROPAGATION BY ROOT CUTTINGS. A number of plants can be more easily and quickly increased in this manner than by cuttings or even seeds. The stronger roots are cut into pieces, from half an inch to an inch long, and are generally sown in boxes or pots and covered slightly with soil. They form young plants in a very short time, and are potted-off in the usual manner. Bouvardias, Phyllanthus, Clerodendrons, Aralias, etc., are often propagated in this way. Many hardy shrubs and trees such as Pyrus Japonica, Ailantus, Paulownia, as well as a number of hardy herbaceous plants, as Helianthus multiflorus, Euphorbia corollata, etc., are increased in this manner, mention of which is generally made under their respective names.

Propendent. Hanging forward, and downward.

Prophet Flower. *Arnebia echioides.*

Prosa'rtes. From *prosartao*, to hang from; in allusion to the pendent ovules or flowers. Nat. Ord. *Liliaceæ.*

A small genus of hardy native plants, with yellow, drooping flowers, common in moist, rich woods, from New York, west and south.

Proserpina'ca. Mermaid Weed. From *proserpo*, to creep; alluding to the creeping habit of the species. Nat. Ord. *Haloragaceæ.*

A genus of two species of hardy aquatic plants, natives of North America, and the West Indies. They are sometimes cultivated in ponds and are useful plants for the aquarium.

Proso'pis. From *prosopis*, a mask; but why applied is unknown. Nat. Ord. *Leguminosæ.*

A genus of trees or shrubs often armed with hooked prickles, widely dispersed through tropical and sub-tropical regions. *P. siliquastrum*, introduced from Chili in 1829, is the species most generally found in cultiva-

tion. It is hardy in the Southern States, and is propagated by cuttings of the half-ripened wood. *P. pubescens*, the Screw Bean or Tornillo, and *P. juliflora*, the Mesquit, Algaroba, or Honey-pod of the South, are both found in Texas, west through New Mexico, and Arizona, to the western foot-hills of the San Bernardino Mountains, California. The wood of the latter is very heavy, hard, and close-grained, and being almost indestructible in contact with the soil, is notwithstanding its crooked timber, much used for railroad ties, and exclusively for the beams and under-pinnings of the adobe houses of New Mexico, etc., and for posts, fencing, etc. A gum resembling gum arabic is yielded by this species, the unripe and pulpy pods, rich in grape sugar, are edible, furnishing valuable and important fodder.

Prostanthe'ra. Australian Mint-bush, or Mint-tree. From *prostheke*, appendage, and *anthera*, anther; connections of the anthers are spurred. Nat. Ord. *Labiatæ*.

Green-house, evergreen shrubs from New Holland, remarkable for the strong odor they emit. Their flowers are produced in terminal racemes, but are not of very great beauty. *P. rotundifolia* has long been under cultivation, quite as much for rarity as for beauty. Propagated by seeds or from cuttings.

Pro'tea. From *Proteus*, the versatile sea-god; in allusion to the diversity of the species. Nat. Ord. *Proteaceæ*.

A large genus of shrubs or trees almost all natives of South Africa. They are still met with in large collections, and are valued for the diversity of their foliage, and the peculiarity of their bottle-brush-like flowers.

Protea'ceæ. A natural order of shrubs or small trees, natives principally of Australia, and the Cape of Good Hope. They present great diversity of appearance, and are cultivated for their handsome habit and the peculiarity of their flowers. The wood of some of the Australian species is valuable for cabinet-making. The order comprises forty-nine genera, and about nine hundred and fifty species; well known examples are *Protea*, *Hakea*, *Grevillea*, and *Banksia*.

Prothallus. A term intended to indicate the first results of the germination of the spores in the higher Cryptogams.

Protoplasm. The matter which is deposited over the inside walls of a cell, subsequent to the formation of the cell itself.

Prou'stia. Named after Proust, a Spanish chemist. Nat. Ord. *Compositæ*.

A small genus of erect, or twining, warm-green-house plants, natives of South America and Mexico. *P. pyrifolia*, a very desirable green-house climber, has white flower-heads with round, cordate or oval leaves, densely tomentose beneath. It was introduced from Chili in 1865, and is increased by cuttings of the half-ripened wood.

Pruinose. Covered with glittering particles, as if frosted over.

Prune'lla. Self-heal. Altered from *Brunella*; derived from the German *braune*, a disease of the throat, for which this plant was a reputed remedy. Nat. Ord. *Labiatæ*.

A small genus of low-growing plants, common everywhere. *P. vulgaris* which has become naturalized from Europe, and is common on roadsides, grows about six inches high, and has pale-purple flowers. *P. grandiflora* is a handsome and vigorous plant, readily distinguished by its large flowers. There is a white as well as a purple variety, both handsome plants that thrive in almost any ground, but prefer a shaded position. *P. Pyrenaica* is a still larger species, with beautiful violet-purple flowers.

Prunes. The dried fruit of certain varieties of the Plum.

Pruning. In pruning we remove some part of a tree, shrub, or other plant, either stem, branches, or roots, with a view to repress growth in one direction, and direct the course of the sap for the benefit of that which remains. It is often quite as necessary to prune trees and shrubs cultivated for their flowers and foliage as those grown solely for their fruit, and whether it is performed upon a branch six inches through, or upon a shoot so tender as to be cut by the thumb nail, the object is essentially the same. The operation, though very simple, is one which the amateur often fears to undertake; and having no confidence in his own ability, he often employs some jobbing gardener, who has no fears on this or any other gardening matter. Pruning is done for various ends, and unless one has a definite reason for doing it, he had better leave it undone. Many have an idea that pruning must, for some reason, be done every year, just as it used to be thought necessary for people to be bled every spring, whether well or ill. We prune to control the shape of a tree or shrub, and by directing the growth from one part to another, obtain a symmetrical form, especially in fruit trees, where it is desirable that the weight of fruit be equally distributed. In some trees, where the fruit is borne only on the wood of the previous season, the bearing portions are each year removed further and further from the body of the tree. In such cases a shortening of the growth each year will cause the formation of a compact head instead of the loose straggling limbs that result when this is omitted. We prune to renew the vigor of a plant. The inexperienced cannot understand how cutting away a third, a half, or even more of a plant can improve it in vigor and fruitfulness, or abundance and size of flowers. Let us suppose that a stem which grew last year has twenty buds upon it. If this is allowed to take its own course in the spring, a few of the upper buds will push with great vigor, and form strong shoots; while those below will make gradually weaker shoots, and for probably the lower third of the stem the buds will not start at all. In fruit trees, as a rule, the most vigorous growth is at the top. The buds there, were the last formed in the previous summer, are the most excitable, and the soonest to grow the next spring, and getting the start of those below them, they draw the nourishment to themselves and starve the others. If, instead of allowing this stem to grow at will in this manner, it had been, before any of the buds had started, cut back so as to leave only a few of the lower ones, those having an abundance of nutriment would push forth with great vigor and be nearly equal in size, while the

flowers or fruit borne upon them would be greatly superior to those upon the unpruned stem. Any one can readily be convinced of the utility of pruning by taking two rose bushes of equal size, leaving one without any pruning to take care of itself, and each spring cutting the other back severely, pruning away one-third or one-half of the wood that was formed the previous season. The result at the end of two years will be very striking.

No general rule can be given for pruning. The amateur should use his eyes, and notice the habit of growth of his trees and shrubs. He will find that many, like the Rose, produce their flowers upon the new wood of the present season, and that such plants are greatly benefited by cutting back more or less each spring. But there are other plants for which this treatment will not answer. If we examine a Horse-chestnut tree, or a Lilac bush, and many other, we shall find that the flowers come from the large buds that are formed on the end of last season's growth, and to cut back such plants would be to remove all the flower buds. With shrubs of this kind, all that need be done is to thin out the branches where they are too crowded. These examples will warn the novice against indiscriminate pruning; and unless, as he stands before his shrub or tree, knife in hand, he knows why he is to prune, and how, let him put his knife in his pocket, and give the plant the benefit of the doubt. While, under the different fruits, we can give directions for the particular pruning required by each, the proper method of treating a miscellaneous collection of ornamental shrubs and trees can only be learned by observation.

The term pruning is generally applied to the cutting away, in whole or in part, of the ripened wood; but much pruning may be done by the use of the thumb and finger. This is termed *pinching*, and is practiced upon young shoots at the growing season, while they are yet soft. This most useful form of pruning allows us to control the form of a plant with the greatest ease, and is applied not only to soft-wooded plants, but to trees and shrubs, and may be so performed on these as to render nearly, if not quite, all pruning of ripened wood unnecessary. When soft-wooded plants, such as Chrysanthemums, Geraniums, or Coleus, are planted out or grown in pots, and left to themselves, most kinds will grow tall and straggling; but if judiciously "pinched back," as it is called (that is, the top of the strongest shoots pinched out), the plants can be shaped into a bushy, rounded form at will. If a vigorous shoot has its end or "growing point" pinched out it will cease to elongate, but will throw out branches below, the growth of which may be controlled in the same manner. The Blackberry illustrates the utility of this kind of pruning. The rampant growing shoot which springs up from the root will, if left to itself, make a long cane six or eight feet high, and with a very few branches near the top. If, when this shoot has reached four, or at most five feet, its end be pinched off, it will then throw out numerous branches; and if the upper branches, when they reach the length of eighteen inches, be "stopped" (as it is called), in a similar manner, by pinching, the growth will be directed to the lower ones, and

by the end of the season, instead of a long unmanageable wand, there will be a well-branched bush, which will bear its fruit all within reach. The grower of plants in pots is usually afraid to remove even a single inch of the stem, and the result is usually a lot of "leggy" specimens not worth the care that is otherwise bestowed upon them. Plants may be prevented from ever reaching this condition, if their growth be properly controlled by pinching; but if they have once reached it, they should be cut back severely, and a compact, bushy form obtained from the new shoots which will soon start. I may state here, however, that if it becomes necessary to cut back a plant in full leaf, care must be taken to withhold water until it again throws out shoots below, for the reason that, being robbed of the foliage and shoots that elaborated the top, an excess of moisture given to the roots, which have now no work to do, will gorge and destroy them.

When judiciously pruned, a shrub or tree can be kept at almost any size, or changed to almost any form; and, besides this, a tree or shrub can be made much more productive of fruit or flowers. On the other hand, improper pruning will not only weaken the vigor of a plant, but may destroy all its beauty of outline, and at the same time hinder the production of flowers and fruit.

If we prune for the purpose of increasing the flowers of a shrub or tree, we must prune different species and varieties at different seasons of the year; but surplus wood and suckers can always be thinned out during the summer season, and wounds which are cut clean in midsummer will heal more quickly than those made in frosty weather. Maples, Birches, Yellow-woods, and many other trees bleed copiously when their branches are cut in the spring, but they heal over more quickly if pruned while in full leaf. Again, shrubs which bloom on wood made the previous year, of which the early *Spiræas*, *Forsythias*, *Honeysuckles*, *Viburnums*, *Syringas*, *Philadelphus*, and *Deutzias*, are examples, should receive their chief pruning soon after the flowers have fallen. This will encourage a growth of young wood with flower-buds for the following year. Of course, when these shrubs are cut back in early spring before flowering, the flower-buds are sacrificed. On the other hand, shrubs like *Hydrangea paniculata*, *Desmodium penduliflorum*, *Hibiscus Syriacus*, and others, which flower on the new growth, bloom more abundantly when cut back severely in early spring. But even in this case the surplus wood should be thinned out during the summer.

With anything like an extensive collection of shrubs constant attention must be given to pruning during the whole growing season, and this is especially true where coarse-growing shrubs and those of delicate habit are planted together. If this is neglected the less robust plants will soon be smothered out by their vigorous neighbors. Many shrubs are pruned too much. If a healthy young plant is carefully pruned at the outset, allowed plenty of room, with all the cross branches cut away to admit light and air, and all the old flowering wood shortened in after bloom and the over-strong shoots stopped, at midsummer, it will not only retain all its natural

beauty, but this beauty will be increased, and it will be full of flowers the next year. After the branches of large shrubs have been thinned out, stronger shoots should be pinched back with the thumb and finger, for this will hasten the growth of flowering-buds. Many trees and shrubs can be made to produce flowers and fruit at a smaller size than if they were left to themselves or pruned only in the winter or spring. This summer pinching also helps to ripen up the wood, and leaves it in good condition to withstand the cold. Apples, Peaches, Plums, Filberts, and many other trees can be made to bear when quite small if the new growth is stopped once or twice in the summer. While trees are growing vigorously the flower-buds do not form well, but by this summer pinching the flow of the sap is checked and the buds are developed.

As to the time of pruning, about which there has been much discussion, it may be done on small stems at any time after the fall of the leaf, before the growth starts in the spring; but for the removal of large branches, late in winter is regarded as the best time. It is a popular idea that trees should not be pruned in excessively cold weather, a very sensible belief, as affecting the comfort of the pruner; but rest assured, it in no way adds to the discomfort of the tree, either present or prospective. Another popular fallacy is that Grape Vines and similar vigorous plants are injured by loss of sap by being pruned late in spring. We have repeatedly pruned vines when the sap run from them in streams, without any apparent injury, though of course it might be better to prune before the sap begins to run.

Pruno'psis Lindleyi. A synonym of *Prunus trilobata.*

Prunus. The ancient Latin name of the Plum. Nat. Ord. *Rosaceæ.*

This genus, as arranged by Bentham and Hooker, includes the Plum, Cherry, Almond, etc., but which, for easy reference, we have described separately. The species are evergreen or deciduous, hardy trees, or shrubs, mostly natives of the temperate regions of the Northern Hemisphere, a few being found in tropical America and Asia. They may be increased readily by seeds, and the many varieties now in cultivation, by budding or grafting. *P. cerasifera* is well adapted for hedges, as is also the Black-thorn or Sloe.

The Myrobalan Plum is one of the plants which has most puzzled botanists, as, although it has been in cultivation for centuries, it is nowhere known in a wild state. It is probably a variety or form of the common Plum (*P. domestica*). It is rarely seen in our gardens, although now that the purple-leaved Persian variety, *P. Pissardi*, is so generally grown, one form of it at least will be in cultivation. The latter variety is a most ornamental sort, and is exceedingly effective when planted with light-colored, or yellow-leaved shrubs. The green-leaved plant is far the handsomer of the two, however, when the trees are in bloom, as the leaves, which are about half-grown when the flowers are fully expanded, make a charming and effective setting for them, and afford what most fruit-trees lack when in flower —a contrast of colors. The fruit is small, depressed-globular, scarlet or yellow, and of little value except for the handsome appearance which it presents as it hangs upon the branches. The Myrobalan is one of the best early flowering trees to plant in a small garden or on a lawn; it is, moreover, less liable to be injured by borers than the purple-leaved *Prunus Pissardi.*

The double-flowered variety of *P. sinensis*, is a very desirable and early-flowering shrub, as is also its congener, *P. trilobata.*

Prurient. Stinging; causing an itching sensation.

Psa'mma. From *psammos*, sand; alluding to the use to which the species are put. Nat. Ord. *Graminaceæ.*

A small genus of hardy grasses. *P. arenaria* has strong perennial creeping root-stocks, and is often planted on the sea-coast to prevent the sand being removed by wind or tides.

Psammi'sia. Named after *Psammis*, a king of Egypt, B. C. 376. Nat. Ord. *Vacciniaceæ.*

A genus of shrubs, sometimes epiphytal, natives of South America. The flowers are large, frequently scarlet, and disposed in axillary racemes or corymbs. Most authors consider the species of this genus to form part of the genus *Thibaudia.*

Pseudo-bulb. A stem having the appearance of a bulb, but not its structure; seen in the thickened, above-ground stem of many Orchids.

Pseu'dodraco'ntium. From *pseudo*, false, and *Dracontium*; in allusion to its resemblance to that plant. Nat. Ord. *Aroideæ.*

A small genus of tropical tuberous herbs, natives of Cochin China. *P. Lacourii*, introduced in 1879, has trisected leaves, the segments being cut or pinnate, spotted and mottled with yellow. Syn. *Amorphophallus Lacourii.*

Pseu'dola'rix. False or Chinese Larch; Golden Larch. From *pseudo*, false, and *Larix*, the Larch, which it resembles. Nat. Ord. *Coniferæ.*

P. Kæmpferi, the only species, is a noble, hardy tree, introduced from China in 1777. It forms a beautiful ornamental tree, the leaves being light-green when young, but becoming golden-yellow in autumn. It is distinguished from the Larch by the cones having deciduous scales with divergent points. Syn. *Larix Kæmpferi.*

Pseu'dopa'nax. A small genus of *Araliaceæ*, represented by a few New Zealand and Chilian species of shrubby habit, with digitate or simple leaves, grown for their ornamental character. *P. crassifolium*, is known in cultivation as *Aralia crassifolium*, and the well-known *Aralia trifoliata*, is now called *P. Lessonii.*

Pseu'dotsu'ga. From *pseudo*, false, and *Tsuga*, the Japanese name. Nat. Ord. *Coniferæ.*

P. Douglasii, the Red Fir, Yellow Fir, Oregon Pine, and Douglas Fir, is the most generally distributed and valuable timber tree of the Pacific region, growing from the sea-level to an elevation in Colorado of nearly 10,000 feet, often forming extensive forests, almost to the exclusion of other species, and reaching in western Oregon and Washington Territory its greatest development and value. The wood is hard, strong, durable, and hard to

work, varying greatly with age and conditions of growth in density and quality. The bark is valuable in tanning leather. A large number of sports, forms, or seedling variations are grown under distinctive names.

Psi'dium. Guava. Derived from *psidion*, the Greek name of Pomegranate. Nat. Ord. *Myrtaceæ.*

An extensive genus of low-growing evergreen trees, confined chiefly to the West Indies and South America. They are much esteemed for their fruit. *P. Guaiava*, produces the well-known Guava fruits, so largely employed in the preparation of jellies, a staple article of West Indian commerce. The fruit is small, yellow, not unlike an Orleans Plum. It is juicy, and in flavor somewhat resembles a Strawberry. *P. Cattleyanum*, the Purple Guava, though originally brought to Europe from China, is most probably a native of Brazil. The fruits, which are produced in great abundance, and are readily distinguished from the common Guavas by their deep, claret-colored, pitted rind, are filled with a juicy, pale flesh of a very agreeable acid-sweet flavor.

Psilosa'nthus. A synonym of *Liatris.*

Psilo'tum. From *psilos*, naked; the plants are almost destitute of leaves. Nat. Ord. *Lycopodiaceæ.*

A genus of Club-mosses, containing numerous forms, reducible, however, to two species. *P. triquetrum* grows on the trunks of trees in tropical or equable climates, and extends through Brazil and Central America to the southern United States. It bears cultivation well, and is not uncommon in green-houses. The spores burst when placed in water, and emit a cloud of microscopic particles.

Psora'lea. From *psoraleos*, warted or scurfy; in reference to the plants being for the most part sprinkled all over, or roughened with glandular dots or wart-like points. Nat. Ord. *Leguminosæ.*

A large genus consisting of nearly one hundred species of annual and perennial herbs, and shrubs, found in great abundance at the Cape of Good Hope and America, more sparingly in Asia, northern Africa and Australia. The leaves of *P. glandulosa*, are used in Chili as a substitute for tea, under the name of "Jesuits' Tea." *P. esculenta*, is a native of Wisconsin, Missouri, and other parts of the Northwest, where its tuberous roots, known as Indian or Prairie Turnips (Pomme Blanche, and Pomme de Prairie, of the Voyageurs), form part of the food of the indigenous population. It is a roughish, hairy plant, with roundish heads of blue flowers. Some of the Cape species are shrubs, and are in cultivation in green-houses.

Psycho'tria. From *psyche*, life; referring to the powerful medicinal qualities possessed by several of the species. Nat. Ord. *Rubiaceæ.*

A large genus comprising about five hundred species of shrubs or small trees, erect, climbing, or twining, found in tropical countries, especially in America. The flowers are generally unattractive, but *P. Jasminoides*, known better as *Gloneria*, forms a beautiful green-house plant, covered, when in bloom, with terminal, corymbose panicles of snowy-white tubular flowers. *P. Chontalensis*, and *P.*

cyanococca, are both very ornamental green-house plants, bearing clusters of deep blue berries (often thirty to sixty on a bunch), very useful as decorative plants in winter. They are both natives of Nicaragua, introduced in 1870, and are propagated by cuttings or seeds.

Pta'rmica. A genus now included under *Achillea.*

Pte'lea. Shrubby Trefoil. Hop-tree. The Greek name of the Elm, here applied to a genus with similar fruit. Nat. Ord. *Rutaceæ.*

P. trifoliata, our native species, is a small tree, ten to fifteen feet high, with trifoliate leaves, and clustered greenish flowers, followed by curious winged seed-vessels. The leaves and fruit, when bruised, emit a strong odor of hops, whence the popular name. When properly trained, this species makes a very interesting lawn-tree.

Pteli'dium. So named by Thomas from its similarity to *Ptelea.* Nat. Ord. *Celastraceæ.*

P. ovatum, the only described species, is an ornamental green-house shrub, with opposite, coriaceous, ovate leaves and terminal cymes of light-green flowers. It was introduced from Madagascar in 1818, and is propagated by cuttings of the ripened wood.

Pteridology. That branch of botany which relates to the study of Ferns.

Pte'ris. Brake. From *pteron*, a wing; the shape of the fronds or leaves. Nat. Ord. *Polypodiaceæ.*

A very extensive genus of Ferns, widely distributed over the temperate and tropical regions, and differing as widely in character. Many of the species are highly valued for green-house and house decoration, as well as for cutting to use with cut flowers. *P. serrulata* and its crested varieties; *P. cretica*, and especially its variegated form, *P. c. albo-lineata*, *P. tremula*, *P. scaberula*, *P. arguta*, and many others, are all invaluable to the florist, and are grown in immense numbers near all our large cities. *P. quadriaurita*, var. *argyræa*, forms a noble specimen and is one of the most valued Ferns for green-house decoration. *P. aspericaulis*, var. *tricolor*, is a very attractive sort, but requiring more heat and moisture than many other kinds, is seldom seen in good form. *P. aquilina*, is the common Brake or Bracken.

Pteroca'rpus. From *pteron*, a wing and *karpos*, a fruit; the pods are girded by a broad wing. Nat. Ord. *Leguminosæ.*

A genus of trees inhabiting the tropical parts of Asia, Africa, and America. They bear generally loose panicles of yellow flowers, rarely violet or white, and are often very showy. The genus comprises about fifteen species, of which a few are in cultivation. Gum Kino is obtained from various trees of this genus. *P. Indicus*, furnishes the Burmese Rosewood, and *P. santalinus*, yields the deep red dye-wood known as Red Saunders, large quantities of which are annually exported from India.

Pteroca'rya. From *pteron*, a wing, and *caryon*, a nut; winged fruit. Nat. Ord. *Juglandaceæ.*

A small genus of very ornamental, low-growing trees, inhabiting China, Japan and the Caucasus. *P. Caucasica*, has pinnate leaves, and small flowers, which are borne in catkins, and are succeeded by winged seed-vessels. In

PTERIS ARGYRÆA.

PRUNUS PISSARDI.

PHLOXES (GROUP OF HARDY PERENNIAL).

PRUNUS TRILOBA.

POLEMONIUM CŒRULEUM.

PSIDIUM (GUAVA).

PYRETHRUM SELAGINOIDES.

QUAMOCLIT (CYPRESS VINE).

PYRETHRUM PARTHENIFOLIUM AUREUM.

PRUNELLA GRANDIFLORA.

PUNICA GRANATUM (POMEGRANATE).

PYRETHRUM CINERARIÆFOLIUM

this climate, in low situations and in rich soil, it does not sufficiently ripen its wood to withstand the frosts, and the tips of the branches are often injured in winter.

Pteroce'phalus. From *pteron*, a wing, and *kephale*, a head; in allusion to the receptacle of the flowers being villous. Nat Ord. *Dipsacaceæ.*

A genus of desirable hardy annual and perennial plants, founded on *Scabiosa plumosa*, and some others from the Mediterranean region. *P. Parnassi*, a native of Greece, is a Scabious-like plant of dwarf, compact growth, forming a dense rounded mass of heavy foliage in summer, with mauve-colored flower-heads. It is a most desirable plant for the ordinary border or for the rock-garden. The annual species merely require sowing in the open border. Syns. *Scabiosa* and *Cephalaria.*

Pterodi'scus. From *pteron*, a wing, and *discus*, a disk; referring to the broad wings of the disk of the fruit. Nat. Ord. *Pedaliaceæ.*

P. speciosus, the only cultivated species, is a very handsome herbaceous, green-house plant, with tuberous roots and a thick succulent stem; a native of South Africa. Its flowers, which are of a beautiful lilac or reddish color, are large, with a funnel-shaped tube and a spreading five-lobed limb. Introduced in 1848; propagated by seeds or by dividing the plant in spring.

Pterolo'bium. From *pteron*, a wing, and *lobos*, a pod. The pods are winged at the extremity. Nat. Ord. *Leguminosæ.*

A genus of tall, climbing shrubs, armed with recurved prickles, natives of tropical Asia, Africa, and America. *P. Indicum*, the only species yet introduced, requires culture similar to a *Cæsalpinia*, but is not often found in cultivation.

Pterolo'ma. A genus now included under *Desmodium.*

Pteroneu'ron. From *pteron*, a wing, and *neuron*, a nerve; referring to the winged placentas. Nat. Ord. *Cruciferæ.*

A small genus of rock-plants now included by many, under *Cardamine.*

Pterophy'llus. A synonym of *Ginkgo*, the Maiden-hair Tree.

Ptero'stylis. From *pteron*, a wing, and *stylis*, a column; alluding to the broadly winged column. Nat. Ord. *Orchidaceæ.*

A genus of terrestrial Orchids with small underground tubers, natives of New Zealand and Australia. A few species are in cultivation, but they are grown more for curiosity than for their beauty.

Pterosty'rax. The name applied to a Japanese shrub constituting a genus of *Styracaceæ.* It forms a medium-sized shrub or low tree, covered with stellate hairs; the leaves are ovate, large and sharply serrated, and the creamy-white fragrant flowers are borne in axillary or terminal pendent clusters or panicles. It is a late introduction from Japan (1875), and is a valuable acquisition to our hardy shrubs.

Ptilo'meris. From *ptilon*, a feather, and *meris*, a part; alluding to the fringed, chaffy scales of some of the species. Nat. Ord. *Compositæ.*

A small genus of hardy plants, natives of California. *P. coronaria*, the only species of

interest, has yellow flower heads, pedunculate at the ends of the branches, and grows well treated as other hardy annuals.

Ptychospe'rma. Derivation of name not given. Nat. Ord. *Palmaceæ.*

A genus of elegant Palms with pinnate leaves, natives of the eastern Archipelago. *P. Seemani* is a very beautiful dwarf Palm, well adapted for table and general decorative purposes. The leaves somewhat resemble those of the *Caryota* in appearance, and are of a bright green color. This Palm never attains large dimensions; the stem, when fully developed, is about an inch in diameter, and is used, on account of its strength and straightness, for spears by the natives of New Guinea, from whence it was received. Propagated by seed. *Seaforthia elegans*, is by some included in this genus under the name of *P. Cunninghamiana.*

Pube'rulous. Minutely pubescent.

Pubescent. Softly downy, or hairy.

Pucci'nia. Named after an Italian botanist, *Puccini.*

A large genus of parasitic Fungi, the species of which are more or less destructive to the mother-plant, unless where they tend to repress over-luxuriance. *P. graminis*, which occurs in almost every part of the world on grasses, and especially on cereals, is the common wheat mildew, one of the most formidable diseases of wheat, and one for which no remedy has yet been found. Were it even possible to devise any plan which might destroy every particle of wheat mildew, there would still be a supply in the fields from the wild grasses. There are many other species which are very destructive when they get a foothold, as those that attack the Barberry, Gooseberry, Strawberry, Mint, etc. *P. Malvaceum* nearly extirpated the Hollyhock in many districts not many years ago, and it is still a pest in many sections. Other species attack the Onion, Carnation, Currant, Gentian, and many other plants for which there appears to be no remedy but the destruction of the diseased plants.

Puccoon, Hairy. *Lithospermum hirtum.*

Pucra'ria. Named in honor of *M. M. N. Pucrari*, a professor of botany at Copenhagen. Nat. Ord. *Leguminosæ.*

A genus of climbing herbs or sub-shrubs, natives of tropical Asia and Japan. Only three species have been introduced, of which *P. Thunbergiana*, is the most interesting. A starch, largely used by the Chinese and Japanese, is obtained from the roots; and a fibre, used for textile purposes, from the stems.

Pudding Berries. The edible fruits of *Cornus Canadensis.*

Pullus. Dusky-brown, or blackish colored.

Pulmona'ria. Lungwort. So named from the supposed medicinal properties in diseases of the lungs. Nat. Ord. *Boraginaceæ.*

An extensive genus of hardy herbaceous perennials, common in the temperate regions of both hemispheres. They are showy border plants, with flowers of various shades of blue. They grow freely in any good rich soil, and are increased by seeds or root division. *P. Virginica* is now placed under *Mertensia*, which see.

PUL

Pulsati'lla. See *Anemone Pulsatilla.*

Pulse. A common name for the seeds of many cultivated *Leguminosæ*, such as Peas, Beans, etc.

Pultenæ'a. Named after *W. Pulteney, M.D., a* botanical author. Nat. Ord. *Leguminosæ.*

A genus of green-house, yellow-flowered, evergreen shrubs from New Holland. Of the fifty or sixty species that make up this genus, but two or three have been introduced into the green-house, and these are only to be found in the more extensive collections.

Pulverulent, Pulverulentus. Appearing as covered with a powdery substance.

Pulvinate. Cushion-shaped.

Pulvinus. A cushion. The term is applied to an enlargement or swelling at the base of a leaf, or at the apex of a petiole.

Pumilus. Short, dense, or close-growing, as compared with other species of the same genus or family.

Pumpkin. *Cucurbita Pepo.* A species of gourd, but when, where, or how, our present varieties originated is past finding out. Three hundred years ago they were made into pies by cutting a hole in the side, extracting the seeds and filaments, stuffing the cavity with apples and spices, and baking the whole. See Squash.

Punctate. Dotted.

Pungent. Terminating gradually in a sharp, rigid point, as in the lobes of a Holly leaf.

Pungent. Very hard and sharp pointed; prickly pointed.

Pu'nica. Pomegranate. From *punicus*, of "Carthage," near which city it is said to have been first found; or from *puniceus*, scarlet; referring to the color of the flowers. Owing to the singular structure of its fruit this genus, which contains only one species, *P. Granatum*, was by some botanists formed into a separate order, *Granateæ*. It was afterwards placed in *Myrtaceæ*, but Bentham and Hooker consider it allied to *Lythraceæ*. *P. granatum*, the Pomegranate, is a very handsome deciduous shrub or low-growing tree, a native of northern Africa and Western Asia. It thrives remarkably well in the Southern States, where it is extensively grown for ornamental purposes. In the Middle and Northern States it is grown in pots and tubs, and used in summer for ornamenting the border or lawn. There are several varieties, the double-flowered scarlet being the most desirable. *P. nana*, a dwarf double-flowered variety, is a favorite green-house plant, suitable for lawn decoration during summer, requiring the protection of a cool house or cellar during the winter. This species is a native of the East Indies, from whence it was introduced into England in 1723. It has since become naturalized in the West Indies and the Southern States. The fruit of the Pomegranate has been highly esteemed for its quality and form from the earliest ages. It was one of the most conspicuous ornaments directed to be used in the construction of Solomon's Temple, and is frequently mentioned in the Bible. All the varieties are of easy culture, and are readily propagated from cuttings of the young wood.

Puniceus. Pure red.

PUY

Purification Flower. A common name for *Galanthus nivalis.*

Purple Cone Flower. See *Echinacea.*

Purple Fringe. A common name for *Rhus Cotinus.*

Purple Wreath. *Petræa volubilis.*

Purpurascens. Having a purplish color.

Pu'rshia. Named after *Frederick Pursh*, author of "Flora Americæ Septentrionalis" (1817). Nat. Ord. *Rosaceæ.*

P. tridentata, the only species is a much-branched, hardy, evergreen shrub with scaly buds, and nearly sessile yellow flowers. It is a native of Oregon, and is increased by cuttings of the young shoots. Syns. *Kunzia*, and *Tigarea.*

Purslane. The popular name of the genus *Portulaca.*

Common Garden. *Portulaca oleracea.*
Milk. *Euphorbia maculata.*
Rock. *Calandrina umbellata.*
Sea. *Arenaria peploides*, and *Atriplex portulacoides.*
Sea, American. *Sesuvium Portulacastrum.*
Siberian. *Claytonia Sibirica.*
Water. *Peplis portula, Isnardia palustris*, and *Ludwigia palustris.*
Winter. *Claytonia perfoliata.*

Purslane Tree. *Portulacaria afra.*

Puschki'nia. Named after *Count M. Puschkin*, a Russian botanist. Nat. Ord. *Liliaceæ.*

P. scilloides, the best known species, is a beautiful little bulbous plant, with light purple flowers, like a small-flowered Scilla, as its specific name indicates. The leaves grow from the bulb, and stand erect round the stem, as though protecting the flower. It is a native of Russia, and perfectly hardy, and is propagated by offsets. Introduced in 1819.

Pusillus. Very small; weak and slender.

Pustular, Pustulate. Covered with glandular excrescences, like blisters.

Puto'ria. From *putor*, a strong smell; in allusion to the smell of the leaves. Nat. Ord. *Rubiaceæ.*

A small genus of dwarf branching shrubs, natives of the Mediterranean region. *P. Calabrica*, the only species in cultivation, is a very pretty plant with red flowers in terminal clusters. It thrives best in a gravelly or sandy soil, and is propagated by division.

Putty-root. See *Aplectrum.*

Pu'ya. Native name. This genus is the same as *Pourretia.* *Puya* has been substituted for *Pourretia*, as being the older name. Nat. Ord. *Bromeliaceæ.*

A genus of green-house herbaceous perennials and epiphytes, with spikes of white and yellow flowers, like the *Pitcairnia*, which they resemble. They are natives of Mexico and South America. *P. heterophylla*, is a very pretty and curious plant, bearing two distinct kinds of leaves: one with tough, broad, horny kinds of leaves, which overlie each other, forming a kind of bulb, extended into narrow, serrated processes about two inches long; the others, which are last formed, are thin, bright green, and lanceolate, more than eighteen inches long. A more recent introduction, *P. grandiflora*, is also a fine plant, and all are interesting. *P. Whytei*, has flowers of a peculiar metallic

greenish-blue color, with bright orange anthers disposed in a large pyramidal panicle on a tall scape. *P. Altensteinii* is a favorite greenhouse species, its pure white flowers, contrasting well with the bright scarlet scape and bracts. Many species of this genus are now placed under *Pitcairnia*. They thrive in a compost of peat and loam, and are easily propagated by suckers, which are generally freely produced.

Pycna'nthemum. The generic name for the native Mountain Mint, or Basil, of which there are ten species, found from Virginia and New York to Illinois, and westward.

Pycno'stachys. From *pyknos*, dense, and *stachys*, a spike; referring to the dense flower spikes.

A genus of *Labiatæ*, peculiar to tropical and sub-tropical Africa, and consisting of erect growing annual or perennial herbs. Several of the species have been introduced to cultivation, the most showy and desirable of which is *P. Urticifolia*. It was introduced from the Shire valley in 1862, and has large dense spikes of rich mazarine blue flowers.

Py'knos. This term, used in Greek compounds, signifies thick, close, dense, compact, hence *Pycnocephalus*, thick-headed, or close-headed; applied to very compact kinds of inflorescence.

Pyraca'ntha. See *Cratægus Pyracantha*.

Pyramidal. Pyramid-shaped, more frequently used, however, to denote conical, as the prickles of some roses, the root of the carrot, and the heads of many trees.

Pyre'thrum. Feverfew. From *pyr*, fire; the roots are hot to the taste. Nat. Ord. *Compositæ*.

A genus of very interesting plants, mostly hardy herbaceous perennials, which only require planting in the open border and the usual treatment of perennial plants. *P. Parthenium*, is the well-known Feverfew, and is common throughout Europe and the Caucasus. The double-flowered form is a very showy and useful plant, flowering all the season and is a general favorite. *P. Parthenifolium aureum*, called Golden Feather, is now also common in every garden, and is largely used for edgings, ribbon borders, carpet bedding, etc., a variety called *laciniatum*, being very distinct from the older kind. The most important, however, of the numerous genera is the Caucasian, *P. roseum*, which has yielded the innumerable varieties, both single and double, that have now become such popular border flowers. They are extremely showy, easy to grow, hardy, and invaluable as cut flowers during several months in summer and autumn. If cut down after flowering in June they flower again freely in September. By judicious crossing, the color of the blossoms is continually becoming more varied, ranging from white, white with yellow centre, yellow, and lilac, to rose, carmine, and crimson. This species is also important as being the basis of the Persian Insect Powder, the best grade of which is imported from the Caucasus, and is manufactured from the dried flowers only. It is also cultivated in California and when dried and ground, is known in commerce as "Buhack." *P. Tchichatchewi*, called the Turfing Daisy, is chiefly remarkable for its power of sustaining drought, its foliage retaining its verdure even in dry weather, and when planted on dry banks or slopes. Being of dwarf, creeping habit of growth, it quickly forms a carpet of green which needs no attention beyond that of removing the flower stems, which, though not devoid of interest may yet in some situations interfere with the utility of the plant. This species has been recommended as a substitute for lawns in hot, dry situations where grass will not survive. *P. uliginosum*, is one of the noblest of all tall growing herbaceous plants, forming dense tufts, five to seven feet in height, terminated by lax clusters of pure white flowers, each about twice the size of those of the Ox-eye Daisy. They are all easily propagated by division or by seed, which should be sown in May or June to flower the following season.

Pyriform. Pear-shaped.

Pyro'la. Wintergreen. Shin-leaf. Name a diminutive of Pyrus, the Pear-tree, from the resemblance of the leaves to those of the Pear. Nat. Ord. *Ericaceæ*.

A genus of low, smooth, perennial, herbaceous herbs, with running subterranean shoots, bearing a cluster of rounded and petioled root-leaves, and a simple raceme of nodding flowers, on an upright more or less scaly bracted scape; natives of Britain, north and central Asia, and North America. Several of our native varieties are very pretty and sweet scented, and well worth cultivating.

Pyrola'ceæ. A natural order now included under *Ericaceæ*.

Pyroli'rion. Flame Lily. From *pyr*, fire, and *lirion*, a lily; alluding to the color and form of the flowers. Nat. Ord. *Amaryllidaceæ*.

A small genus of rare and beautiful Peruvian bulbs allied to Zephyranthes. The flowers are orange and yellow, produced in July and August, before the leaves appear. They can be grown in the open border. The bulbs require to be kept dry and warm during the winter, and are increased by offsets. If grown in pots in the green-house, they must have rest from December until April. Introduced into England in 1833.

Pyrula'ria. A diminutive from Pyrus, the Pear; in allusion to the form of the fruit, which, in the original species, is like a small Pear. Nat. Ord. *Santolaceæ*.

A genus of two species of deciduous trees or shrubs, one North American, the other Himalayan. *P. oleifera*, the Buffalo, Elk, or Oil-nut, is found in rich woods in the mountains of Pennsylvania and southward through the Alleghanies. The whole plant, and especially the fruit is imbued with an acrid oil.

Py'rus. Pear. Also Apple, which see. From *peren*, the Celtic word for Pear. Nat. Ord. *Rosaceæ*.

The different kinds of Crabs and Pears are very ornamental flowering plants, independent of the value of the fruit of some of the species. The ornamental kinds are all low trees, admirably adapted for the lawn or the shrubbery, and are all of easy culture. They are propagated by grafting the finer on the more common kinds. To thrive and look well, however, they require an airy situation, and not to be crowded among other trees. Among the kinds most worthy of notice are

the following: *Pyrus spectabilis*, the Chinese Crab or Garland-flowering Wild Apple, producing the most showy flowers of the whole genus in May, and as hardy as the common Crab or Wild Pear. *P. coronaria*, the Sweet-scented Crab, with large and beautiful pink blossoms is highly fragrant, as is the first. *P. coronaria angustifolia*, the narrow-leaved Sweet-scented Crab, has flowers as beautiful as the former, and its leaves are sub-evergreen. This and the two preceding kinds have the fruit green when ripe, and fragrant, but it is hardly edible. *Pyrus baccata*, and *P. prunifolia*, two kinds of Siberian Crab, have very showy flowers, and small red or yellow fruit. These are the principal ornamental species of the Crab or Apple kind, unless we except one, the Moscow or Transparent Crab, *Pyrus Astracanica*, which has fruit almost as large as a Golden Pippin, and wax-like when ripe. The Crab, though commonly cultivated for its fruit, as useful for the table, well deserves a place on the lawn as an ornamental plant, from the extraordinary beauty of the fruit, and it is sometimes used for that purpose. The ornamental Pears are the following: *P. salvifolia*, which has woolly leaves like those of the Sage, and like all the Pears, white flowers; this peculiarity, independently of other marks, distinguishing them from the Apples, which have reddish flowers. *P. amygdalæformis*, is another ornamental species, which has silvery-white leaves, and fruit shaped like that of the Almond; and to these may be added *P. elæagnifolia*, which has long, narrow, white leaves like those of the Elæagnus; *P. salicifolia*, with long, narrow, silky leaves, like those of the Willow; and *P. nivalis*, which has round leaves of a snowy whiteness. All these species have small green fruit not good to eat, but the trees are very ornamental from their shape and the singular color of their foliage. The following kinds of Pyrus belong to the section Aria: *P. Aria*, and its varieties, *P. a. angustifolia*, and *P. a. cretica*, the White Beam Tree, are valued for the beauty of their leaves, which are green above and white beneath, and for the bright scarlet fruit which they produce in great abundance. *P. vestita*, the Nepal White Beam Tree, is a rare and beautiful object, as its leaves, which are clothed with a thick white wool beneath, are of a large size, and change in autumn to a most beautiful pale yellow. Other ornamental species of Pyrus are as follows: *P. variolosa*, remarkable for the varying forms of its foliage, which is sometimes pinnate, like that of the Mountain Ash, and sometimes deeply lobed and cut, like that of the Hawthorn, or entire and cordate and pointed like that of the Pear. It is somewhat tender, and thrives best in a sheltered situation, or against a wall. *P. torminalis*, the Griping Wild Service Tree, is remarkable for the beautiful form of its leaves, which, however, are unfortunately very apt to be eaten by insects. The buds are large, of a beautiful green, and very ornamental in the winter season. *Pyrus aucuparia*, the Mountain Ash, is a well-known small tree, beautiful both when in flower and in fruit, and worth cultivating for its foliage alone. *Pyrus Americana*, the American Mountain Ash resembles the common kind, but has larger leaves and smaller fruit, although it is of a much deeper

red. *Pyrus sorbus*, the common Service Tree, has foliage like that of the Mountain Ash, but larger; and the fruit resembles that of the common Pear but much smaller, and not ornamental, though it is eatable. *Pyrus spuria*, a native of Kamschatka, has leaves like the Elder, and small black fruit; the leaves of this species change in autumn to an intensely deep purple, almost black. There is a pendulous variety, *P. s. pendula*, which is one of the most ornamental of drooping-branched small trees; and as neither the variety nor the species exceeds twelve or fifteen feet in height, they are admirably adapted for small gardens. The following kinds of Pyrus are shrubs, and very ornamental, both for their fruit and flowers: *P. Maulei*, introduced from Japan 1874, is one of the most beautiful of recently introduced shrubs. English papers compare it with *Cydonia* (*Pyrus*) *Japonica*, which the flower does to some extent resemble in form, though not quite so bright a red as in the type of that species. In foliage and habit it is more like the *Cratægus Pyracantha*, and like it, has a disposition to be evergreen. Its golden-yellow fruit, which are produced in great abundance, are agreeably perfumed and make an excellent conserve. *P. Arbutifolia*, has white flowers and black fruit, and the leaves of this become of a beautiful red in autumn; there are six or eight varieties commonly treated as species. All the plants belonging to the genus Pyrus are quite hardy, and may all be raised from seeds, or grafted on the Wild Crab, or Wild Pear, or on the Hawthorn, which, though belonging to the genus Cratægus, is very nearly allied to Pyrus. The most beautiful of all our scarlet-flowering shrubs, now known as *Cydonia Japonica*, was formerly classed in the genus *Pyrus*. Of this species there is also a white variety. The scarlet variety of *Cydonia Japonica*, makes a most beautiful hedge plant, looking at a distance like a line of fire.

Pythonium. From *python*, a serpent, on account of the form of the spadix. Nat. Ord. *Aroideæ*.

A genus of plant-stove, herbaceous plants, with globular, fleshy root stocks; closely allied to *Caladium*. One species, *C. Wallichianum*, best known under the name of *Arum bulbiferum*, is remarkable for the presence of little bulb-like buds on the leaves, just at the junction of the stalk with the blade of the leaf. These bulbs become detached and thus serve to perpetuate the species. This plant has been described under the name of *Thomsonia*.

Pyxidanthe'ra. From *pyxis*, *pyxidos*, a box, and *anthera*, an anther; the anther opening as if by a lid. Nat. Ord. *Diapensiaceæ*.

P. barbulata, Pine-barren Beauty, or Little Pixie, is a small, prostrate, creeping evergreen, not over two inches in height. It is fairly covered in early spring with its beautiful white or pinkish flowers, forming a remarkably pretty little plant for the rock garden, or any similar situation. It is very common in the Sandy Pine barrens of New Jersey and southward.

Pyxis, Pyxidium. A pod opening round horizontally by a lid, as in *Hyoscyamus*, or *Anagallis*.

Q.

QUA

Quadri. A term of Latin origin, signifying four times, as Quadrangular, four-angled; Quadrifoliate, four-leaved; Quadrifid, four-cleft.

Quakers and Shakers. A common name for *Briza media.*

Quaking Grass. The common name of *Briza maxima*, etc., which see.

Quamash. See *Camassia esculenta.*

Qua'moclit. Cypress Vine. From *kyamos*, a Kidney Bean, and *klitos*, dwarf; the species of this genus resembles the Kidney Bean in their climbing stems, but are less tall. Nat. Ord. *Convolvulaceæ.*

A somewhat extensive genus of half-hardy climbing annuals and green-house perennials. *Q. vulgaris*, perhaps better known as *Ipomœa Quamoclit*, is the beautiful Cypress Vine of our gardens. Of this species there are three varieties, with scarlet, white, and rose-colored flowers, all natives of the East Indies. The species are quite common in the Southern States, having escaped from the gardens into the fields and hedgerows. These beautiful annuals are not as much grown north of New York as they should be, the difficulty having been to get them started sufficiently early for a satisfactory season of flowering. By sowing the seeds in pots, in the house or in a hot-bed, early in April, they will come forward early, and may be turned out into the open border, when all danger from frost is past. The plants thus started will grow twenty feet high in a season, and be completely covered with flowers for at least three months. The seed may be sown where wanted to grow. If the ground is made fine and rich, and the seeds soaked in hot water before being sown, there will be no difficulty in getting a very fine display, though not of as long duration as if started in pots. *Q. coccinea*, is the small-flowered, heart-shaped-leaved Ipomœa, or *Star Ipomœa* (see *Ipomœa*), a very free-flowering species from the East Indies. It is perfectly hardy, and difficult to exterminate when once planted. This genus is included under *Ipomœa*, by some botanists.

Qua'ssia. Linnæus applied this name to a tree of Surinam in honor of a negro slave *Quassi*, who used its bark as a remedy for fever, and enjoyed such a reputation among the natives as to be almost worshiped by some, and suspected of magic by others. Nat. Ord. *Simarubaceæ.*

Q. amara, the only known species, is a very ornamental, low-growing tree, native of Guiana. It produces long, upright racemes of bright scarlet flowers, the petals of which are curiously twisted together. They flower freely if in a green-house with plenty of heat; their size, however, will not warrant their general introduction. The wood is intensely bitter, and the extract is used as a substitute for hops in making beer. Drinking cups are made from the wood, for the tonic quality it is supposed to impart to the water if allowed to stand in them a short time before drinking. The wood of this tree is the Quassia of commerce.

QUE

Quebec Oak. *Quercus alba.*

Queen Lily. See *Phædranassa.*

Queen of the Meadow. See *Spiræa Ulmaria*, and *S. Salicifolia.*

Queen of the Prairies. *Spiræa lobata.*

Queensland Plum. See *Davidsonia.*

Que'rcitron. See *Quercus tinctoria.*

Que'rcus. The Oak. From the Celtic *quer*, fine, and *cuez*, a tree; others derive it from the Greek word *choiros*, a pig; because those animals feed on the acorns. Nat. Ord. *Cupuliferæ.*

An extensive genus of well-known trees, comprising about one hundred and fifty species, chiefly confined to the northern regions of the globe, being rarely met in the southern hemisphere. They are mostly trees of large size; a few only may be considered shrubs. A number of the species are evergreen, one of the most valuable of the class being *Q. virens*, or Live Oak, which grows from Virginia southward, and the value of the timber increases, because of its quality, the further south it is found. *Q. alba*, White Oak; *Q. tinctoria*, the Quercitron, Black, Dyer's, or yellow-barked Oak, and *Q. Prinus*, the Chestnut Oak, furnish the most valuable timber for the mechanic arts. The Washington Oak, at Fishkill-on-Hudson, is of the latter species, and is one of the historical old trees of this country, of which the "Garden and Forest," December, 1888, says:

"Washington's headquarters remained on the west bank of the Hudson, between Newburgh and New Windsor, from the spring of 1782 to August 18th, 1783; and during this time he crossed the river frequently for the purpose of visiting the troops in camp upon Fishkill Plain, near the village of that name. The most convenient landing-place on the east bank was upon a long, low point of land formed to the north of the mouth of Fishkill Creek, known as '*Presqu'ile*,' and here, according to the tradition of the locality, under two large Oak trees, Washington always mounted and dismounted from his horse as he started and returned from the camp.

"One of these trees alone remains; its companion was blown to the ground on the 10th of August, 1881. The story of Washington's connection with these two Oaks seems to be abundantly substantiated. The Commander-in-Chief was often accompanied on these excursions from his headquarters to the camp at Fishkill by his Adjutant-General, William Denning, whose son, also William Denning, at that time fourteen years of age, was sometimes allowed to join the party. The impressions made upon the boy by the incidents of this period were not effaced; and many years later, in 1822, after a life of travel and adventure, he returned to the Hudson and purchased from a member of the Verplank family the point of land, and the old

Oaks, still associated in his mind with the Commander-in-Chief of the American Army and the first President of the United States. The daughter of the second William Denning, to whom we are indebted for these facts, still inhabits the old mansion built on '*Presqu'ile*' in 1813; and her life and that of her father span the years which separate us from the days of Washington and the Colonial Army.

"The tree is still healthy and vigorous, and standing directly at the top of the low river bank. The trunk girths, at the present time, twenty-one feet, and, judging from the age of its companion, which was blown down seven years ago, eight or ten centuries may have passed since the acorn from which it sprang fell to the ground."

Q. macrocarpa, the Over-cup White Oak, and *Q. coccinea*, the Scarlet Oak, are the most beautiful for shade trees. *Q. ilicifolia*, is the common Scrub Oak, that rarely attains a height of eight feet. *Q. infectoria*, a native of the Levant, is a very common species, the branches of which are liable to be stung by insects, causing the formation of the Gall Nuts of commerce. All the species are invaluable for timber or fuel, excepting the low-growing kinds. The bark of all the species contains large quanties of tannin, which gives it a value exceeding that of the timber. *Q. suber*, Cork Oak, a native of southern Europe and northern Africa, furnishes the Cork of commerce. The outer layers of bark in this tree increase annually, and after eight or nine years fall off; but for commercial purposes they are removed one or two years previously. The bark of the tree is removed by incisions round the top and bottom of the tree, and by a long one connecting these two, which allows the bark to be stripped off. This is effected when the bark is most firmly attached to the wood, in order that the innermost layers of bark may not be injured, nor the health of the tree impaired, more than is necessary. The trees furnish a *crop* of bark once in eight or nine years.

Quilla'ja. From the Chilian name *Quillai*. A small genus of South American trees, belonging to the Nat. Ord. *Rosaceæ*, remarkable for possessing soap-like qualities.

The bark of *Q. saponaria*, which is a tree from fifty to sixty feet high, is rough and dark-colored externally, but inside consists of numerous whitish layers, which contain a large quantity of carbonate of lime and other mineral matters. It is also rich in a vegetable soap-principle, called *Saponine*, and therefore much used as a substitute for Soap.

Quinate. Arranged in fives.

Quince. See *Cydonia*.

Quince. Bengal. *Ægle marmelos*.

Quinine Plants. The principal plants producing the Quinine-bark of commerce are several species of Cinchona, the principal of which are the Yellow bark, *C. Calisaya;* the Gray or Huanuco bark, *C. micrantha*, and *C. nitida;* the Loxa or Crown-bark, the produce of *C. Condaminea* (syn. *C. officinalis*), and the Red bark furnished by *C. succirubra*.

Quin'tinia. Named for *La Quintinie*, a French writer on horticulture. Nat. Ord. *Saxifragaceæ*.

A small genus of shrubs or small trees, natives of New Zealand and southern Australia. The genus is closely allied to *Escallonia*, and the species are seldom found in cultivation.

Quinsy-Berry. The fruit of *Ribes nigrum*.

Quisqu'alis. From *quis*, who, and *qualis*, what kind; referring to the fact that when the genus was named it was uncertain to what class or order it belonged. Nat. Ord. *Combretaceæ*.

A genus of plants indigenous to tropical and sub-tropical Asia and Africa, and consisting of climbing shrubs, with opposite, rarely alternate leaves, and axillary or terminal spikes of flowers. These are very fine plants for the hot-house or a warm green-house, and are great favorites with those who grow them. *Q. Indica*, *Q. glabra*, and *Q. Sinensis*, are among the best, bearing brilliant red, orange red, and rose-colored flowers. Propagated from cuttings of young wood. First introduced into England in 1815.

Quitch, or Quick Grass. The common name for an intolerable pest. See *Triticum*.

Quiver Tree. A common name for *Aloe dichotoma*.

Quivi'sia. *Bois de Quivi* is the name given in the Isle of France. Nat. Ord. *Meliaceæ*.

A genus of trees and shrubs, natives of Mauritius, Bourbon and Madagascar. *Q. heterophylla*, the only species yet introduced, has white flowers borne in axillary clusters, but is of little horticultural interest.

R.

Rabbit Berry. *Shepherdia argentea*.
Rabbit Foot. *Trifolium arvense*.

Rabbit Root. *Aralia nudicaulis*.

Raccoon Berry. *Podophyllum Peltatum*.

Race. A term applied to *varieties* of plants as distinguished from *species*, when they can be perpetuated by seed through a series of generations, when they become permanent varieties. The Cauliflower, Broccoli, Cabbage, etc., are distinct races, which have sprung from the species *Brassica oleracea*.

Raceme. An inflorescence in which the flowers are arranged singly on distinct pedicles along a common axis; a spike with stalked flowers, as the *Laburnum*.

Racemose. Flowering in a raceme.

Rachis. The axis or central stem of an inflorescence, or of a compound leaf.

Radial. Growing on the circumference of a circle.

Radiate. Diverging from a common centre, like rays, as the arms of an umbel, or the ligulate florets of any composite.

RAD

Radical. Springing from the root, or from its crown.

Radicans. Rooting from the stem or leaves.

Radicle. The first root of a plant, rudimentary in the embryo.

Radicose. Having a large root.

Radish. The well-known esculent root of *Raphanus sativus* (which see). The common garden Radish is a hardy annual, entirely unknown in its native state. It is usually credited to China. It has long been held in high esteem, and before the Christian era a volume was written on this plant alone. The ancient Greeks, in offering their oblations to Apollo, presented Turnips in lead, Beets in silver, and Radishes in vessels of beaten gold. Pliny observes that Radishes grow best in saline soils, or when they are watered with salt water; and hence, he says, the Radishes of Egypt are better than any in the world, on account of their being supplied with nitre; modern experience, however, does not allow us to endorse this. He gives some account of the kinds grown at Rome in his day, one of which he describes as being so clear and transparent that one might see through the roots. The Radish was introduced into England during the sixteenth century. Four kinds were cultivated by Gerarde in the latter part of the reign of Queen Elizabeth. Since that time many new varieties have been introduced and disseminated by European seedsmen and gardeners. The seed is extensively grown in France and Germany, and to those countries we are indebted for our supply more than to any other. For a seed crop the plants are taken from a seed-bed and transplanted when quite small, an operation that can only be carried on profitably where labor is very cheap. When ripe, the plants are cut to the ground and stacked, and allowed to remain so a year before they are threshed. If this care is not observed, and the seed threshed out soon after ripening, it will invariably become heated and spoiled, and this is the chief cause of failure in the germination of the seed. The seed retains its vitality a number of years. The varieties of Radish now most prized are: French Breakfast, Early Round Dark Red, Early Scarlet Turnip, Wood's Early Frame, White-tipped Scarlet Turnip, and for winter the Rose Chinese. Radishes are largely grown in the Southern States to be shipped north, as it is a vegetable probably more than any other grown, that is appreciated for its earliness. Immense quantities are raised under glass in green-houses, hot-beds, and cold-frames in the vicinity of all large cities. It is estimated that upward of twenty acres are raised under glass in the vicinity of New York. A light, rather sandy soil, well enriched with short stable manure, suits them best. Under glass the temperature should not exceed 60° at night, with ten to fifteen degrees higher during the day. The variety most used for forcing is the Round Dark Red.

Radish. Horse. *Cochlearia Armoracia.*
Sea. *Raphanus maritimus.*
Rat-Tail. See *Raphanus caudatus.*
Water. *Nasturtium amphibium.*
Wild. *Raphanus Raphanistrum.*

RAK

Radius. The circumference or outer side of the circle formed by umbels or heads, or other such parts.

Radix. The root; that part which is the development of the radicle.

Raffia, or Roffia. See *Raphia.*

Raffle'sia. Patma-wort. Named after *Sir Stamford Raffles*, who discovered the plant in the interior of Sumatra, where it is called Ambun-Ambun. Nat. Ord. *Rafflesiaceæ.*

The typical genus of a wonderful order of parasitical plants resembling some species of Fungi in general appearance, but which, according to the authority of the celebrated English botanist, Robert Brown, is a true flower, having stamens in one plant and pistils in another. *R. Arnoldi* was found in the Island of Sumatra about sixty years ago, and was then, as it is now, considered to be one of the greatest wonders of the Vegetable Kingdom. It consists of five fleshy lobes or petals, each three feet across, of a spotted or mottled red color, the centre forming a cup-like dish, capable of holding six quarts of water. It has the offensive odor of some species of Fungi, and was first supposed to belong to that order from this fact, and its general resemblance to the Fungus class.

Ra'fnia. Named in honor of *C. G. Rafn*, a Danish botanist, who wrote a flora of Denmark in 1796. Nat. Ord. *Leguminosæ.*

A genus of glaucous, often glabrous, shrubs, natives of South Africa. They all have yellow flowers in short terminal racemes. A few species, much resembling some of the *Crotolarias*, are in cultivation, and are propagated by cuttings of the firm side shoots, or by seeds.

Ragged Robin. *Lychnis Flos-cuculi.*

Ragged Sailor. See *Polygonum.*

Ragweed. *Ambrosia trifida.*

Ragwort. See *Othonna*, and *Senecio Jacobæa.*

Rain-berry. *Rhamnus catharticus.*

Rainbow Flower. A popular name for the genus *Iris.*

Rainbow Plant. A name given to *Alternanthera paronychioides major.*

Raisin-Tree. Japanese. A common name for *Hovenia dulcis*, and *Ribes rubrum.*

Rake. This is the implement usually used for leveling the soil after digging, or in cleaning up walks, etc., but for many years we have found the steel rake, of a size suitable to the work to be done, to be the most effective tool used in our grounds for the prevention of weeds.

Nearly all our first "hoeing" is done by these rakes; that is, the ground, in from three to four days after planting or sowing, is raked over, thus destroying the weeds just as they begin to germinate and before they appear on the surface. In from five to ten days, according to the state of the weather, the ground is again gone over with the rakes. We are no believers in deep hoeing in newly-planted ground; it is only when plants begin to grow, and when the soil gets hard, that deep hoeing is beneficial. By the use of the steel rake in this manner, three times as much work can be done as by the hoe. It cannot be used, of course, if the weeds are up, but if

it is thus used before the weeds appear on the surface, one man will do more than six will if delay has been made until the weeds have to be cut down by the hoe.

Ramee or **Ramie.** See *Bœhmeria.*

Rame'nta. Thin, chaffy scales with which the stems of some plants, especially Ferns, are covered.

Ramification. Sub-divisions of roots, branches, leaves, or panicles.

Ramiflorous. Flowering on the branches.

Ramo'ndia. Named after *L. Raymond,* a French botanist. Nat. Ord. *Gesneraceæ.*

R. Pyrenaica, the best known species, is a very pretty little perennial, growing only three to four inches high, with the flower-stalks springing from a dense mass of rough, dark green leaves. The general habit of growth of the plant very much resembles that of a Primrose. It is quite hardy, and admirably adapted for rock-work; but it will grow in the border, where it is not too warm and dry. It begins to flower in May, and continues in bloom nearly the whole summer. It is a native of the Pyrenees, whence it was introduced about 1600. Parkinson describes it as the "Blew Beares Eares with Borage leaves." The flowers, however, are not blue, but pale lilac; propagated by root division, or from seed.

Ramose. Divided into many branches.

Rampion (*Campanula Rapunculus*). A hardy biennial, the fleshy roots of which are used in salads, either boiled or in a raw state. The leaves are also blanched and used in winter salads. It is very little cultivated.

Ram's Head. A popular name for *Cypripedium arietinum.*

Ramstead. One of the common names of *Linaria vulgaris.*

Ramulose. Bearing many small twigs, or small branches.

Ra'ndia. Named after *J. Rand,* a London botanist. Nat. Ord. *Rubiaceæ.*

A small genus of green-house evergreen shrubs, natives of the East Indies, and allied to *Gardenia.* They are rarely grown as flowering or ornamental plants. The powdered root of some of the species is sold as Indian Cockle, and is used to intoxicate or stupefy fish, which permits their easy capture.

Ranuncula'ceæ. A large natural order of herbaceous herbs, rarely shrubs or climbers, with radical or alternate leaves, very frequently much cut or divided. The species are numerous in Europe and northern Asia, and less so in North America. There are also a few found in the temperate regions of the southern hemisphere. Throughout the order there is a tendency to an acrid, caustic and more or less poisonous principle, volatile in the foliage but virulent in the roots. The narcotic and poisonous qualities of the Aconites are well known. There are about forty genera, and upwards of twelve hundred species. The well-known garden plants, *Aconitum, Clematis, Anemone, Pæonia,* and *Ranunculus* are good examples.

Ranu'nculus. Buttercup, Golden Cup, King's Cup, and Crowfoot. From *rana,* a frog; many of the species inhabit marshy places frequented by frogs. Nat. Ord. *Ranunculaceæ.*

The species may be divided into two kinds: border flowers and florists' flowers. The latter consist of some hundreds of the varieties obtained from the species *Ranunculus Asiaticus,* a native of the Levant, with tuberous roots, which is rather too tender to endure the winter in the open air without some kind of protection. The wild plant grows naturally in Persia, in meadows which are moist during winter and in the growing season, but dry during a great part of summer. The usual season for planting the Ranunculus is from September to November. The roots may be placed about four inches apart each way, covered with two inches of soil, and protected by straw, mats, or other material, during severe frosts. The plants will come into flower in June, and when the leaves wither the roots may be taken up, dried in the shade, and preserved in a dry place till they are wanted for replanting. As the plant seeds freely, even when semi-double, new sorts without end may be raised from seed, which may be sown in pots or flat pans as soon as it is gathered, and placed in a cold frame. The common mode, however, of propagating the Ranunculus is by separating the offsets from the larger roots. Several of the species are weeds with us, and common in moist pastures, having been introduced from Europe at an early day. They have become extensively naturalized, so much so as to be a nuisance to farmers in some places, and are popularly known as Buttercups. *R. acris flore-pleno,* the Yellow Bachelor's Buttons, is a profuse flowerer, the blossoms being in button-like rosettes, and Buttercup yellow in color. The double variety of *R. Aconitifolius,* is known in Britain as "Fair Maids of France" and "Fair Maids of Kent," and, with the foregoing species, is an excellent and ornamental border plant, flourishing best in a deep, moist loam. *R. amplexicaulis,* is a most beautiful herbaceous plant, growing about a foot high, with glaucous-gray foliage, and pure white blossoms an inch or more across, with bright yellow centres. It also grows best in a deep, moist loam, and is the better for the protection of a cold frame during winter.

Rape. *Brassica napus.* A hardy biennial sometimes grown in gardens as a salad plant.

Rapha'nus. Radish. From *ra,* quickly, and *phainomai,* to appear; alluding to the quick germination of the seeds. Nat. Ord. *Cruciferæ.*

A very useful and widely grown genus of plants, including the well-known *Radish* of the garden. *R. caudatus,* the Rat-tail Radish, said to be a native of Java, is commonly cultivated in the West Indies for its edible pods. For culture, etc., see *Radish.*

Ra'phia. From the native name of the Madagascar species. Nat. Ord. *Palmaceæ.*

The species forming the genus of Palms are confined to three very limited but widely separated localities; one, *R. tædigera,* being found only on the banks of the Lower Amazon and Para Rivers in Brazil; another, *R. vinifera,* on the west coast of Africa; while the third, *R. Ruffia,* is only known as a cultivated plant in Madagascar and the neighboring islands. All three inhabit low, swampy lands in the vicinity of the sea or river banks, within the influence of the tides. They have stout, un-

TYPES OF RADISHES.

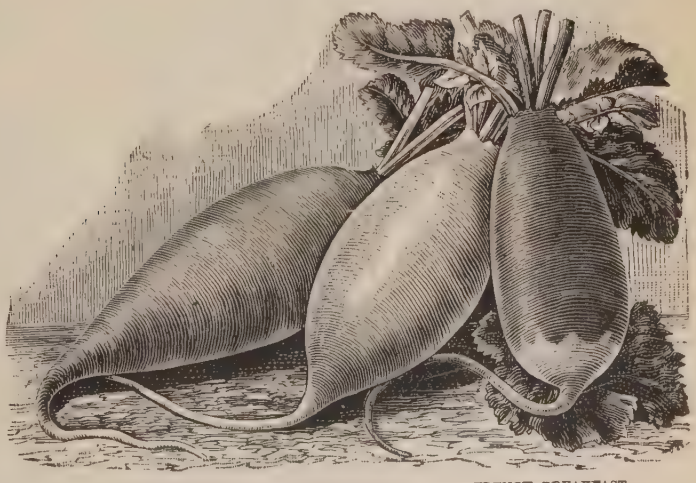
LONG BLACK SPANISH.

EARLY WHITE TURNIP. SCARLET TURNIP. WHITE TIPPED SCARLET TURNIP.

ROSE CHINA WINTER.

CHARTIER WHITE STRASBURG. RED ROCKET.

LONG SCARLET.



OLIVE SCARLET. OLIVE WHITE. FRENCH BREAKFAST.

RIBES (RED CURRANT).

RIBES (BLACK CURRANT).

RIBES (WHITE CURRANT).

RIBES (GOOSEBERRY).

RANUNCULUS (DOUBLE FRENCH).

armed, ringed trunks of no great height, and bear gigantic, pinnate, spiny leaves, often fifty or more feet in length, and erect, so that the entire trees are sometimes sixty or seventy feet high. The flower spikes are also of large size and much branched, hanging down from among the leaves, and measuring as much as six feet in length, the branches being arranged in two opposite rows, and the ultimate ones bearing the flowers resembling flattened catkins. Both sexes are borne on the same spike. The fruit spikes sometimes weigh as much as two or three hundred pounds, and bear a large number of one-seeded fruits rather larger than eggs, covered with shining, bony, overlapping scales. These Palms furnish material for a great variety of useful purposes, such as the manufacture of baskets, boxes, mats, rope, bags, etc., besides thatch for houses and other uses. While one (*R. vinifera*) produces Palm wine in abundance, another (*R. Ruffia*) has furnished the gardener with his best tying material. This species was introduced from Madagascar into England as long ago as 1820, but it has only been within the past ten years that its great value as a fibre-producing plant has been known outside of its native home. *Raffia*, as a tying material for plants, either in the green-house or the garden, supersedes Cuba bast and Russia matting to such an extent that these fibres are now rarely used for this purpose. It may be added here, that Dr. Von Martius, the great authority on Palmaceous plants, removed the above mentioned three species from *Sagus*, and placed them together under the generic name *Raphia*. *Sagus Ruffia*, and *Raphia Ruffia*, are therefore one and the same plant. These Palms require a high, moist temperature for perfect development. Propagated by seeds.

Raspberry. See *Rubus*.

Raspberry-jam Tree. The *Acacia acuminata*, of western Australia, from which is obtained a hard, heavy wood, with an odor resembling Raspberry-jam.

Rattan Cane. A common name for *Calamus Draco*, and other species.

Rattan Palm. See *Rhapis*.

Rattle. Red. A common name for *Pedicularis sylvatica*.

Rattle. Yellow. *Rhinanthus Crista-galli*.

Rattlesnake Grass. *Glyceria Canadensis*.

Rattlesnake Orchid. See *Pholidota*.

Rattlesnake Plantain. A local name for *Goodyera pubescens*.

Rattlesnake Root. *Nabalus albus*.

Rattlesnake's Master. *Eryngium Yuccæfolium*; also a local name for *Liatris scariosa* and *L. squarrosa*.

Rattlesnake Weed. *Hieracium venosum*.

Ravena'la. Said to be the native name of the plant in Madagascar. Nat. Ord. *Scitamineæ*.

A genus comprising two splendid ornamental stove plants very much resembling the Musa. One is a native of northern Brazil and Guiana, the other, *R. Madagascariensis*, as the name implies, of Madagascar. This noble plant is called by the French the "Traveller's Tree" on account of the water which is stored up in the large cup-like sheaths, and which is sought for by travelers to allay their thirst. The seeds are edible, and the blue pulpy aril surrounding them yields an essential oil. Syn. *Urania speciosa*.

Ravene'a Hildebrandtii. The only described species is a neat, slender Palm, nearly allied to *Hyophorbe*. It is a native of the Comoro Islands, whence it was introduced in 1878. It is a very graceful, ornamental species, in habit like some of the *Chamædoreas*.

Ray. Parts diverging in a circle from a central point. The outer flowers, when differently formed from the inner in umbels.

Ray Grass or Rye Grass. *Lolium perenne*.

Receptacle. That part of the fructification which supports the other parts.

Reclinate. Turned or curved downwards so that the upper part rests on the ground or some other object, as the branches of many trees.

Recurved. Bent, but not rolled, backwards or outwards.

Red Bay. *Laurus Carolinensis*.

Red Bud. *Cercis Canadensis*.

Red Cedar. See *Juniperus Virginiana*.

Red Gum Tree. *Eucalyptus resiniflora*.

Red-Hot Poker. See *Tritoma*.

Red Lac. *Rhus succedanea*.

Red Root or Blood Root. Popular names for the fleshy rhizomes of *Sanguinaria Canadensis*. See also *Ceanothus*, and *Lacnanthes*.

Red Spider. See *Insects*.

Red Top. The common name of *Agrostis vulgaris*, which see.

Red Wood. An East Indian dye-wood, the produce of *Pierocarpus santalinus*, which see.

Reed. See *Phragmites* and *Arundo*.

Reed. Indian, or Indian Shot. Common names for *Canna Indica*.

Reed-mace. *Typha latifolia*.

Reeve'sia. Named for *John Reeves, F. L. S.*, of Canton, a zealous botanist. Nat. Ord. *Sterculiaceæ*.

A genus of green-house trees, natives of Eastern Asia. *R. thyrsoidea*, the only introduced species, is a very handsome tree with white or cream-colored flowers and alternate, broadly-lanceolate leaves. Introduced from China in 1826.

Reflexed. Abruptly bent outwards, or backwards.

Refracted. Bent suddenly, so as to appear broken at the bend.

Rege'lia. Named after *Dr. E. Regel*, Superintendent of the Botanic Gardens at St. Petersburgh. Nat. Ord. *Myrtaceæ*.

A genus of green-house shrubs, with the habit of *Beaufortia*, natives of western Australia. *R. ciliata*, the only introduced species, forms a handsome spreading, more or less pubescent or hairy shrub, with bright red flowers in small dense globular heads. Propagated by cuttings of the half-ripened shoots. Introduced in 1874.

Regular. Uniform and symmetrical in shape of structure.

REH

Rehma'nnia. Named in honor of *Joseph Rehmann*, a physician of St. Petersburgh, 1779-1831. Nat. Ord. *Scrophulariaceæ*.

A genus of two species of hardy perennial plants, natives of China and Japan. *R. Chinensis* is a very handsome, dwarf-growing plant, producing in summer large tubular flowers of a purplish color striped with a darker hue. It succeeds best planted in a moist, shady border, and requires to be wintered under glass. It is increased by cuttings. Syn. *R. glutinosa*.

Rei'dia. An honorary name. Nat. Ord. *Euphorbiaceæ*.

A genus of about a dozen species of greenhouse shrubs, allied to *Phyllanthus*, and by some authors included under that genus. They are small bushes, having slender twigs furnished with numerous small, entire leaves, bearing in their axils, either singly or in clusters, small greenish or whitish flowers tipped with pink. Some of the species are very pretty, though not considered useful flowering plants. They are mostly natives of the East Indies. They were first introduced in 1864, and are propagated by root cuttings.

Reindeer Moss. See *Lichen*.

Reine'ckea. Named in honor of *J. Reinecke*, a successful cultivator of tropical plants. Nat. Ord. *Liliaceæ*.

R. carnea, formerly called *Sanseviera carnea*, the only known species, is a very pretty, hardy, herbaceous perennial inhabiting the marshy districts of Japan. It has grassy leaves six inches to a foot long, from the midst of which arises a flower stalk three or four feet high, bearing a number of rose-colored, or purple, fragrant flowers, each seated in the axil of a bract. The plants are well adapted for the aquarium or margins of fountains. A beautiful variegated variety is in cultivation, but requires to be pot-bound, or grown in poor sandy soil, or lime-rubbish, to retain its variegation. Propagated by offsets.

Rein Orchis. See *Habenaria*.

Reinwa'rdtia. Named after *K. G. K. Reinwardt*, once director of the Botanic Garden at Leyden. Nat. Ord. *Linaceæ*.

A genus found in the mountain regions of India, consisting of three species which were formerly included under *Linum*, but from which they differ botanically. *R. triginum* (syn. *Linum*) is an erect branching, deciduous-leaved bush cultivated for its handsome yellow flowers, which are nearly one and a half inches across and are all the more highly prized that they are produced freely in winter. Easily propagated by cuttings or pieces of the creeping root. *R. tetraginum* is a later introduction from the mountains of India. It has alternate, deep green leaves, its beautiful yellow and orange flowers being borne five or six at a time on each branch, in terminal or axillary racemes. It is an excellent free-flowering winter green-house plant.

Rena'nthera. From *ren*, a kidney, and *anthera*, an anther or pollen-bag; in allusion to the kidney or reniform shape of the anthers or pollen masses. Nat. Ord. *Orchidaceæ*.

A small genus of epiphytal Orchids, mostly rare, and exceedingly beautiful. *R. Lowii* is a remarkable species, a native of Borneo. This species grows to a great height, and has leaves from two to three feet long, with pendulous flower stems ten or twelve feet in length, clothed with numerous large, conspicuous flowers, resembling some large insect. It is allied to *Vanda*, and requires to be grown in a high, moist temperature. Introduced in 1843.

RET

Reniform. Kidney-shaped in outline.

Repens. Creeping.

Replicate. Folded backwards.

Rescue Grass. *Bromus Schræderi*. A valuable forage grass, thriving in any soil, but preferring that which is wet or moist.

Rese'da. Mignonette. From *resedo*, to calm or appease. The Latins considered its application useful in external bruises. Nat. Ord. *Resedaceæ*. For description of this genus see *Mignonette*.

Reseda'ceæ. A natural order of annual or perennial herbs, with alternate, entire, or pinnately-divided leaves, and minute gland-like stipules. They are natives chiefly of Europe, northern Africa and Western Asia, but a very few occur in southern Africa and northwest America. *R. luteola*, the wild yellow-weed, or Dyer's-weed, was formerly in great demand, affording, as it does, a beautiful yellow dye. The order contains about six genera and thirty species.

Resin Plant. A common name for *Bursera acuminata*, and *B. gummifera*, *Dammara Australis*, *Guiacum officinale*, etc.

Restharrow. See *Ononis*.

Restia'ceæ. A natural order of perennial herbs, with horizontal or creeping rhizomes, mostly natives of Australia and southern Africa. The order comprises twenty genera and about 230 species, few of which are of any horticultural value. *Restio* and *Willdenowia* are the best known examples.

Re'stio. From *restis*, cord; alluding to the use of the plants in South Africa. The grass-like plants of this genus are used as cord at the Cape of Good Hope. The species are only of botanical interest.

Restre'pia. Named in honor of *Joseph E. Restrep*, a naturalist who traveled in South America. Nat. Ord. *Orchidaceæ*.

A small genus of epiphytal Orchids from Central America. They are very pretty little plants, with curious, many-colored flowers. They are of easy culture in a cool house. They all flower freely in summer, and should be grown in pots in leaf mould and sphagnum moss. They were first introduced in 1843, and are propagated by division.

Resupinate. Inverted in position, appearing as if upside down.

Resurrection Plant. A popular name given to *Anastatica Hierochuntina* and *Selaginella lepidophylla*.

Reticulate. Resembling net-work.

Retino'spora. Japan Cypress. From *retine*, resin, and *spora*, spore or seed. Nat. Ord. *Coniferæ*.

A genus of very beautiful, hardy evergreens, mostly dwarf and compact, particularly adapted for lawn decoration. They are closely allied to *Cupressus*, and are propagated in the same manner. The Japanese Retinosporas are among the most beautiful of small evergreen trees. They are fine subjects for the lawn, are hardy in the latitude of New York,

and make very pretty hedges, especially *R. obtusa aurea*. They are worthy of being largely planted. Introduced in 1864. This genus is placed by some botanists under *Chamæcyparis*.

Retuse. Terminating in a round end.

Revolute. Rolled back; as certain tendrils, and the sides and ends of some leaves.

Rhamna'ceæ. A natural order of trees or shrubs, inhabiting warm and tropical regions. The branches are often thorny or prickly, with the flowers in axillary or terminal clusters, cymes or panicles. The most useful genera, from an economic point of view, are *Rhamnus*, and *Zizyphus*, the species of which yield medicinal juices. *Rhamnus davuricus*, and *R. tinctorius*, yield the famous Green Indigo, the Lo-Kao of China, quantities of which have been imported into Lyons and used for dyeing silks, the shades of green imparted by it being exceedingly beautiful. The order consists of about forty genera and over four hundred species. Well-known examples are *Rhamnus*, *Ceanothus*, *Cobletia*, *Phylica*, and *Hovenia*.

Rha'mnus. Buckthorn. From *rham*, a Celtic word signifying a tuft of branches. Nat. Ord. *Rhamnaceæ*.

An extensive genus of hardy deciduous and green-house evergreen shrubs, the more useful and common being *R. catharticus*, common in Great Britain, where it is much grown as a hedge plant. The fruit of this species was formerly in great demand for its medicinal properties. The Alder Buckthorn, *R. Frangula*, affords a coloring matter, and the most important commercial product of the genus is the dyeing material used by calico printers, and known as Yellow-berries, or Persian Berries, considerable quantities of which are annually imported from Asiatic Turkey and Persia. Although usually ascribed to *R. infectorius*, they are probably collected indiscriminately from several species, the unripe fruits alone being gathered. *R. Caroliniana*, (Indian Cherry) forms small bushes, which in summer are covered all over with small greenish flowers, unripe and ripe small, but very ornamental, red and black fruit in immense profusion. *R. crocea*, is widely distributed on the Pacific coast, from the valley of the Upper Sacramento to Arizona. It most frequently occurs as a low, spreading bush, five to ten feet high, though in some localities it becomes quite arborescent, with a trunk ten inches in diameter. *R. insularis*, of Greene, is thought by Professor Sargent to be a variety of this species, and which he proposes to call *R. crocea*, var. *insularis*. It is one of the Mexican species, and is found in the Santa Barbara and Cedar Islands, off the Californian coast, and also on the mainland (Santa Cruz Mountains). It bears black, bilocular fruit, and is a much larger plant in every way. More information than now exists, based upon field observation upon the different California species of Rhamnus, is very desirable. Proper limitations of the different species and varieties are still doubtful, and really nothing is known of the life histories of these plants.

Rhaphido'phora. From *raphidos*, a needle, and *phero*, to bear; alluding to the needle-like hairs which abound in all parts of the plants. Nat. Ord. *Aroideæ*.

A large genus of climbing stove-house shrubs, with very large rooting branches, natives of tropical Asia, the Malayan Archipelago and the Pacific Islands. A few species are cultivated in plant-stoves to cover walls or dead stems of trees, but they are rather coarse, except in large collections.

Rhapidophy'llum. From *rhapis*, a needle, and *phyllon*, a leaf; in reference to its resemblance to the genus Rhapis, both producing suckers freely—a character by no means common in the Palm family.

R. Hystrix (Blue Palmetto), a low-growing species with a short erect or creeping trunk, is a native of the Southern States, and is known in cultivation as *Chamærops Hystrix*.

Rhaphio'lepis. Indian Hawthorn. From *rhapis*, a needle, and *lepis*, a scale; alluding to the subulate bracts. Erroneously spelled *Raphiolepis*. Nat. Ord. *Rosaceæ*.

A genus of evergreen shrubs found in China and Japan. They are nearly allied to *Cratægus*, from which they are distinguished by their flowers being produced in panicles instead of clusters. *R. Indica* and its varieties are nearly smooth evergreen shrubs, with short terminal panicles of white or pink-tinted flowers of the size of those of the Hawthorn. They have been introduced into the green-house. *R. Japonica*, is a beautiful large-leaved species, forming a bush from six to ten feet high, and commonly cultivated by the Japanese, who plant it either with Azaleas and other bushes, or singly, as it forms a beautiful object when covered with its numerous bouquets of dark crimson flowers. Hardy in the vicinity of New York with slight protection. They are propagated by seed. First introduced in 1664.

Rha'pis. From *rhapis*, a needle; referring to the needle-like segments of the leaves. Nat. Ord. *Palmaceæ*.

A small genus of Palms, closely allied to *Chamærops*. They are nearly all natives of Eastern Asia, and mostly of dwarf habit and slender growth. One of the species, *R. flabelliformis*, is popularly known as Rattan Palm, and furnishes the walking canes so common on the streets. *R. humilus*, is a rare and beautiful species, not often seen in collections, and is propagated by suckers. First introduced in 1765.

Rhapo'nticum. From *Rha*, the old Greek name for Rhubarb, and *Ponticus*, of Pontus. Nat. Ord. *Compositæ*.

A genus of annual or perennial herbs, one or two of which are cultivated in full collections of hardy herbaceous plants. *R. cynaroides*, a species introduced from the Pyrenees, growing three or more feet in height, has a stout stem and large leaves, covered underneath with silvery down. *R. pulchrum*, is another very showy species from the Caucasus. They are suitable plants for borders, the margins of groups, or for isolation, and are easily increased by division.

Rhea. A name given to *Bœhmeria nivea*, and *B. utilis*.

Rhe'um. Rhubarb. From *Rha*, the Russian name of the river Volga, near which the Rhubarb was found. Nat. Ord. *Polygonaceæ*.

Some of the species of this well-known genus

have been cultivated from the earliest ages for the medicinal properties they possess. Dioscorides, who was physician to Antony and Cleopatra, wrote on its qualities, and recommended it for use. The Turkish Rhubarb, so largely employed in medicine, is the root of *R. palmatum*, a native of China, and is sent to Europe through Russia, by the way of Kiachta. It was formerly imported from Natolia, whence the name Turkey Rhubarb. The Turks get the credit of producing this important article of commerce, when, in reality, it only passes through their country. An inferior article used in the adulteration of this drug is grown throughout southern Europe. The Rhubarb of our gardens is a hybrid of *R. Rhaponticum*, a native of Asia, but of what particular part is not known, nor the time of its introduction. It was first cultivated in England by Dr. Fothergill in 1778, but did not come into general use as a culinary vegetable until several years later. As a market crop it has only been cultivated about fifty years. Many varieties have been introduced, for which we are chiefly indebted to the British gardeners. Some of the varieties, under high cultivation, produce enormous leaf-stems; the size, however, is largely at the expense of quality. The roots of *R. palmatum*, and *R. officinale*, furnish the Rhubarb of commerce, and *R. Rhaponticum* is also cultivated extensively for medicinal purposes. Several of the species are very handsome, both in their foliage and inflorescence; notably *R. nobile*, a comparatively recent introduction from the Himalayas, and one that is highly prized as a decorative plant. The radical leaves are large and glossy, bright-green in color, with red stems and nerves. The chief beauty, however, is in the bracts or stipules on the flower stems; these are of a delicate straw color, shining, semi-transparent, concave and imbricating, so as to entirely conceal the greenish flowers, the upper bracts being delicately edged with pink. Dr. Hooker, speaking of this Sikkim species as he saw it growing wild, says that it has such a singular and showy appearance, that its introduction into cultivation is greatly to be desired. He thus describes the plant: "The individual plants of *R. nobile*, are upward of a yard high, and form conical towers of the most delicate straw-colored, shining, semi-transparent, concave, imbricating bracts, the upper of which have pink edges; the large, bright, glossy, shining green radical leaves, with red petioles and nerves, forming a broad base to the whole. On turning up the bracts, the beautiful membraneous, fragile pink stipules are seen like red tissue paper, and within these again the short-branched panicles of insignificant green flowers. The root is very long, often many feet, and winds among the rocks; it is as thick as the arm, and bright yellow inside. After flowering, the stem lengthens, the bracts separate one from another, become coarse, red brown, withered and torn; finally, as the fruit ripens they fall away, leaving a ragged-looking stem, covered with panicles of deep brown, pendulous fruits. In the winter these naked black stems, projecting from the beetling cliffs, or towering above the snow, are in dismal keeping with the surrounding desolation of the season. The natives, it is said, eat the pleasantly acid stems, and call them *Chuka*."

Rhubarb is a plant found in every well appointed garden. It is of the easiest culture, and will grow in open sunshine or partial shade; but for its best development a deep, rich, well-drained soil in open sunshine is indispensable. When wanted for private use a couple of dozen plants, which can be procured cheaply from almost any nurseryman, is the best way to get a supply; but when wanted in quantity for market purposes, the cheapest way is to sow the seed in March or April in well-prepared and richly manured land in rows four feet apart. When the plants come up so as to have covered the ground, thin them out to two or three inches apart; and again later in the season, say by August, to two feet apart, so that they will now stand two feet between the plants and four feet between the rows. The last thinnings, if needed, may be used for making permanent plantations. Another plan of raising Rhubarb from seed is as follows: About the middle of March sow the seeds thickly in a cold pit or frame, in light, fibrous soil, such as leaf mould, so that the young plants will make fibres freely, and thus be easily transplanted. One pound of seed will be enough to sow six 3x6 sashes, and will give about one thousand plants. In four or five weeks after sowing, the plants will be fit for transplanting, which may be done in richly-prepared beds of six rows each, at a distance of one foot each way. By fall they will have made fine, well-ripened roots, which may be thinned out either in the fall or spring, leaving the plants that stand at four feet between the plants and six feet between the rows. The plants that have not been moved will give a partial crop the next year, or in about fifteen or sixteen months after the seed was sown. The roots lifted out as thinnings should be planted, either in the fall or spring, for a permanent crop, at the same distances apart; but, having been disturbed, they will make a weaker growth, and no crop should be taken the first year of planting, as removing the leaves of course weakens the newly-planted root, which has not yet vigor enough to endure it. The second year after planting, however, a full crop will be obtained, if the ground has been in a proper, well-pulverized and enriched condition. The most profitable and simple part of Rhubarb growing is by forcing, after a supply of large roots has been obtained; and if forcing is to be continued, a succession of such supply should always be on hand, as the roots, after forcing, are worthless. All that is necessary in forcing Rhubarb is to take the large three or four-year-old roots from the open field, which, if well-grown, will be from fifteen to twenty inches in diameter, and pack them upright as closely as they can be wedged together (with light soil shaken in to fill the interstices between the roots) under the stage or benches of the green-house, or in a warm cellar, or, in fact, in any place where there is a growing temperature; say an average of sixty degrees. But little water is needed, and none until the Rhubarb shows signs of healthy growth. There is no necessity for light; in fact, the stems being blanched by being grown in the dark, are much more tender than when grown in the light and air of the open garden, and are therefore more valuable, besides being forced at a season (from January to April) when they are not

obtainable in the open ground in the Northern States. Many of our market gardeners and florists, who, once having a supply of Rhubarb roots, pack them under the benches of the green-house, where vegetable or flowering plants are grown, realize nearly as much profit from the space under the stage (usually useless) as on it. It is also forwarded in another way by those who have no green-house. The roots are taken up in the fall and packed closely together, as is done in forcing, in what is known as a cold pit or frame, which is covered with leaves thick enough to keep out the frost. By March 1st the leaves are all removed, except two or three inches, when sashes are put on the frame or pit. By this forwarding process Rhubarb may be had from three to four weeks earlier than that grown out of doors. We have in this article recommended raising Rhubarb from seed, as it is the cheapest and quickest way; and experience has shown us that the varieties raised from seeds of either the "St. Martin's," "Victoria" or "Linnæus," come true enough to the originals for all practical purposes. Those, however, who are particular to have these kinds exactly correct, can obtain them by division.

Rheumatism Root. See *Jeffersonia.*

Rhe'xia. Deer Grass, Meadow Beauty. From *rhexis*, a rupture; from its astringent qualities it is supposed to cure ruptures. Nat. Ord. *Melastomaceæ.*

A small genus of very pretty hardy herbaceous perennials, common in sandy swamps from New York west and south. The flowers are bright pink, large and showy. The plants do not grow above six inches to one foot in height, but, from their branching habit, completely cover the ground with foliage and flowers.

Rhinaca'nthus. From *rhis*, *rhinos*, the nose, and *Acanthus*; alluding to the curious shape of the Acanthus-like corolla. Nat. Ord. *Acanthaceæ.*

A small genus of dwarf shrubs, natives of Africa, Madagascar, the East Indies, and the Malayan Archipelago. *R. communis*, the best known species, forms a neat bush bearing panicles of white flowers and oblong lanceolate leaves. It is sometimes cultivated under the name of *Justicia nasuta.*

Rhina'nthus. Yellow Rattle. From *rhis*, *rhinos*, the nose, and *anthos*, a flower; alluding to the form of the corolla. Nat. Ord. *Scrophulariaceæ.*

A genus of hardy annuals, natives of Europe, northern Asia, and North America. They are interesting only as growing generally in poor wet land, and as being more or less parasitical on the roots of grasses. *R. Crista-galli* is one of our rare native plants, being found only on the White Mountains, the alpine regions of the Rocky Mountains, and the shores of Lake Superior, and northward. It has also been found at Plymouth, Mass., and in meadows near East Haven, Conn., probably introduced in both localities.

Rhinope'talum. From *rhis*, *rhinos*, a nose, and *petalon*, a petal; base of the upper sepal. Nat. Ord. *Liliaceæ.*

R. Karelini, the only known species, is a small bulbous plant from the Ural Mountains. Its flowers are pale pink, spotted, somewhat resembling the *Fritillaria*, though inferior in beauty to the majority of its allies. It grows freely if cultivated in the same manner as the Lily, and is propagated by offsets. It was introduced in 1834.

Rhipido'pteris. From *rhipis*, a fan, and *pteris*, a fern; referring to the formation of the fronds. Nat. Ord. *Polypodiaceæ.*

A small genus of Ferns allied to *Polybotrya*, but differing in habit. The species are curious little creeping plants, with small fronds from one to three inches high. They are confined to the West Indies and South America. They are grown in the hot-house.

Rhipo'gonum. From *rhips*, a rod, and *gonu*, a knee or joint; in allusion to the jointed stalk. Nat. Ord. *Liliaceæ.*

Ornamental green-house evergreen climbers from New Holland. The flowers are white, disposed in axillary clusters, not unlike *Myrsiphyllum*. *R. album*, was introduced in 1820, and is propagated by cutting.

Rhip'salis. Coral Cactus. From *rhips*, a willow branch; referring to the flexible branches. Nat. Ord. *Cactaceæ.*

Very curious succulent plants, which are natives of South America and the West Indies. As the Opuntias may be said to be all leaves, and the different kinds of tree Cereus all stem, so the Rhipsalis may be said to be all branches; for the whole plant consists of a series of short, round, articulated branches, spreading in all directions. The flowers of this genus differ from those of Cacti generally, in being small and not very handsome; they are generally pale yellow. They are propagated by cuttings, and require the same soil and treatment as other Cactaceous plants. The species are all natives of the West Indies and South America. Introduced in 1818.

Rhizome. A prostrate, more or less subterranean stem, producing roots and leafy shoots.

Rhizo'phora. Mangrove. From *rhiza*, a root, and *phoreo*, to bear; the branches send down roots like the Banyan Tree. Nat. Ord. *Rhizophoraceæ.*

The best known species of this genus is a large tree inhabiting the muddy swamps close to the sea-shore in tropical climates. Its interesting character is thus described by Dr. Hamilton: "In the economy of Nature the Mangrove performs a most important part, wresting annually fresh portions of the land from the dominion of the ocean, and adding them to the domain of man. This is effected in a twofold manner; by the progressive advance of their roots, and by the aërial germination of their seeds, which do not leave their lofty position till they have assumed the form of actual trees, and drop into the water with their roots ready prepared to take possession of the mud, in advance of their parent stems. The progression by means of the roots is effected by fresh roots, which issue from the trunk at some distance above the surface of the water, and arching down, penetrate the mud, establishing themselves as the pioneers of fresh invasions of the retiring element. In this manner the plants, after their descent from the parent trees, continue during their early years to advance steadily forward, till they have obtained a height of about fifteen

feet, and gained a position considerably in advance of their parent trunks. After this, fewer additions are made to the roots, but the head begins to expand in every direction, spreading its branches on all sides. These branches, in their turn, send down long, slender roots, like those of the Banyan Tree (*Ficus Indica*), which, rapidly elongating, descend from all heights, and reaching the water, penetrate the mud, becoming in time, independent trees. Thus a complicated labyrinth is at length formed." The fruit of the species is edible, and its fermented juice is made into a light wine. In Borneo a coarse, bitter salt is extracted from their aërial roots.

Rhizophora'ceæ. A natural order of tropical trees or shrubs, with opposite, entire leaves and axillary flowers, closely allied to *Combretaceæ* and *Lythraceæ*. The order contains about fourteen genera, the chief of which are *Halopetalum* and *Rhizophora*.

Rhoda'nthe. From *rhodon*, a rose, and *anthos*, a flower; in allusion to the color of the flower-heads. Nat. Ord. *Compositæ*.

A very beautiful genus of half-hardy annuals found in western Australia. *R. Manglesii* and its varieties have white, rose, crimson, and purple flowers. These plants are admirably adapted for the border in summer, or the conservatory or green-house in winter, as they come into flower early, and continue for a long time. The flowers, if gathered when young and dried in the shade, will retain their beauty during the winter, making them valuable for bouquets of dried flowers. For perfection of growth in the border, the seed should be sown in March in the green-house or a hot-bed, and carefully grown on in small pots until all danger from frosts is past, when they may be turned out into the open border. For winter flowering the seed should be sown in August or September. Introduced by Capt. Mangles in 1832.

Rho'dea. See *Rohdea*.

Rhodio'la. From *rhodon*, a rose. Nat. Ord. *Crassulaceæ*.

A genus of succulent plants, separated from *Sedum*, on account of their bearing fertile and barren flowers on distinct plants.

Rhodochi'ton. A genus of *Scrophulariaceæ*, differing but little from *Lophospermum*, the calyx being less divided and the corolla not so open.

R. volubile, is an interesting and useful climber either for the green-house or for summer decoration in the flower-garden. It can be increased by cuttings or seeds. Introduced from Mexico in 1833.

Rhododе'ndron. Rose Bay. From *rhodon*, a rose, and *dendron*, a tree. Nat. Ord. *Ericaceæ*.

A genus of well-known evergreen shrubs and low-growing trees, remarkable for their beautiful flowers and thick, luxuriant, glossy foliage. The species are widely diffused, being indigenous to the United States, Europe, Asia, and the Indies. Some of the species are perfectly hardy, and others require the protection of the green-house. Of our native species *R. maximum* (Great Laurel), common from Maine to Ohio, is a tall-growing shrub, with leaves from four to ten inches long, very thick and glossy. The flowers are a light rose color, nearly white, with greenish throat,

and spotted with yellow or light red. *R. Catawbiense*, common on the Alleghanies from Pennsylvania southward, is perfectly hardy, and flowers most profusely. It seldom grows above four feet high, but forms a symmetrical shrub, exceedingly ornamental for a lawn plant. This species is the parent of all our hardy varieties, having been hybridized with the Nepal species, *R. arboreum*. From this cross there has been raised a great number of beautiful kinds, most of which are hardy in the latitude of New York. The varieties include colors from nearly pure white to dark crimson. All the hardy sorts are of easy culture, growing freely in almost any loamy soil, but they prefer a moist situation, protected from cold winter winds. When first planted they should be mulched with any convenient material that will prevent evaporation and keep the roots moist and cool. Several fine species have been introduced from the Himalayas, a few of them bearing but little resemblance to the common Rhododendron, one being a climber. The plants are propagated by seeds, cuttings, layers, or by grafting. *Azalea*, and *Rhodora*, are included in this genus by Bentham and Hooker.

Rhodole'ia. From *rhodon*, a rose; alluding to the color of the flowers. Nat. Ord. *Hamamelidaceæ*.

R. Championi is a beautiful green-house shrub, rivalling the Camellia, but of a very curious structure. It forms a small, evergreen tree, but would probably blossom freely as a shrub. The leaves are alternate, elliptic-ovate, bright green above, glaucous beneath. The flower-heads grow at the ends of the branches, and are two inches and a half in diameter, of a beautiful rose color, enclosing a large number of stamens. These heads usually consist of five flowers. It is a native of China, growing in the woods about Hong Kong. Introduced in 1850.

Rhodomy'rtus. From *rhodon*, a rose, and *myrtos*, myrtle; in allusion to the rose-colored flowers, and its alliance to the Myrtle.

A genus of *Myrtaceæ*, containing a few species of trees or shrubs, natives of Eastern Australia, tropical Asia, and the Indian Archipelago. *R. tomentosa*, the only cultivated species, known as the Hill Gooseberry, and Indian Hill Guava, has ovate-velvety leaves, downy beneath, and beautiful rose-colored flowers. Introduced from China in 1776, under the name of *Myrtus tomentosa*.

Rhodo'ra. From *rhodon*, a rose; alluding to the color of the showy flowers. Nat. Ord. *Ericaceæ*.

R. Canadensis, the only species, is a handsome, low-growing shrub, with oblong, deciduous leaves, whitish and downy underneath; the showy, rose-purple, rarely white flowers appearing rather earlier than the leaves. It is a native of cold woods and swamps, New England to Pennsylvania, and northward on the mountains. Included by Bentham and Hooker under *Rhododendron*.

Rhodotha'mnus. From *rhodon*, a rose, and *thamnos*, a shoot or branch. Nat. Ord. *Ericaceæ*.

This genus consists of a solitary species, found in the Alps of Europe, and long known as *Rhododendron Chamæcistus*. It is a pretty, dwarf, almost prostrate, evergreen shrub,

with small oblong leaves, toothed and fringed on the margin, and solitary pale purple flowers, produced in May or June.

Rhodoty'pus. From *rhodon*, a rose, and *typos*, type. Nat. Ord. *Rosaceæ*.

R. kerrioides, the only species at present known, is a slender-branching, hardy, evergreen shrub, remarkable for its large, terminal, pure white flowers, resembling those of an *Althæa*, but smaller. It is well adapted for the lawn, contrasting finely with the *Weigelia* and other hardy ornamental shrubs. Introduced from Japan in 1886. Increased readily by cuttings or layers.

Rhoeo discolor. This is given in "Nicholson's Dictionary of Gardening" as the correct name of *Tradescantia discolor*.

Rhomboid. Approaching a Rhomb in shape; applied generally to leaves or petals.

Rhopa'la. From *Roupala*, the Guianan name. Nat. Ord. *Proteaceæ*.

A genus of South American trees or large shrubs, having simple or pinnate coarse leaves, conspicuous for their terminal or axillary racemes of yellow flowers, which are often covered with a rich brownish wool. A number of the species are under cultivation in the green-houses, but chiefly in botanical collections.

Rhopalo'stylis. From *rhopalon*, a club, and *stulos*, a pillar; alluding to the club-shaped spadix. A genus of two species of Palms, known in cultivation as *Areca Baueri* and *Areca* (*Kentia*) *sapida*.

Rhubarb. See *Rheum*.

Rhus. Sumach. Derived from *rous* in Greek, which is from *rhudd*, a Celtic word signifying red; alluding to the color of the fruit, and also of the leaves of some species in autumn. Nat. Ord. *Anacardiaceæ*.

An extensive genus of deciduous shrubs, natives of the United States, Europe, and Asia. They are all interesting from the beautiful colors their leaves assume in dying off in autumn. *R. Toxicodendron*, and its varieties, commonly called Poison Ivy or Poison Oak, are about as dangerous as the fabulous Upas Tree of Java. There is, however, a singular fact connected with this plant that makes it distinctive; some persons can handle it with impunity, while others, from the slightest touch, or even from the wind blowing over the plant, will have their arms, face and bodies fearfully and painfully swollen by it. The same is true, though in a less degree, when the leaves of Celery or Parsnip are touched by the arms or face when damp. *R. venenata* or Poison Elder, has so virulent a sap that it is said to occasion fever and inflammation in those who cut it down. One of the most beautiful species is *R. cotinus*, Mist or Smoke Tree, a native of the south of Europe. It is remarkable for its feathery inflorescence. This species also yields the yellow dye-wood called young Fustic. *R. vernicifera*, a Japan species, is a small tree, and yields the famous Lacquer so extensively employed by the Japanese for lacquering various articles of furniture and small ware. It exudes from wounds made in the tree, and is at first milky white, but becomes darker, and ultimately black on being exposed to the air. Nothing is known respecting the mode of preparing it; that is kept a profound secret, as one of their sources of wealth. *R. typhina*, the Stag-horn Sumach; *R. copallina*, the Dwarf Sumach, and *R. glabra*, generally called the Smooth Sumach, are all handsome small trees or shrubs, exceedingly useful and valuable in ornamental planting when grown in a mass and kept compact by occasional shortening-in of the more vigorous upright branches. They can be planted also with admirable effect as single specimens upon the lawn, and from the habit common to all the Sumachs, of spreading rapidly from underground shoots, they are excellent plants for clothing rocky banks, railroad cuts, and other rough places, where it is desirable to hold the soil from washing, and to shade the ground. There is a variety of *R. glabra* (var. *laciniata*), with deeply incised leaflets, discovered many years ago in Chester County, Pennsylvania, which is often seen in our gardens, parks, etc. The various species can be increased from seed, but a supply of young plants can be much more readily obtained by cutting up pieces of the stout roots into pieces two or three inches in length and planting them in nursery rows. Vigorous young plants of a size fit for permanent planting can be obtained by this method in a year.

Rhyncho'sia. From *rhynchos*, a beak; the keel of the flower is beaked. Nat. Ord. *Leguminosæ*.

An extensive genus of herbs and undershrubs, mostly of a twining habit. They are natives of the West Indies, Mexico, South America, and India, and are plants of but little beauty. *R. precatoria* has pretty little half-black and half-scarlet or yellow shining seeds, which the Mexicans string into necklaces and rosaries.

Rhynchospe'rmum. From *rhynchos*, a beak, and *sperma*, a seed. Nat. Ord. *Apocynaceæ*.

R. jasminoides is a very beautiful, free-flowering and sweet-scented green-house climber, a native of India, China, and Japan. In habit it resembles the Jasmine, as its specific name implies. It is a rapid grower, requiring only ordinary green-house culture. A variety with variegated foliage is very ornamental. It was introduced in 1846, and is propagated by cuttings. Syn. *Trachelospermum*.

Rib. The principal vein or nervure which proceeds from the petiole into a leaf; also any firm longitudinal elevation.

Ribbon Flower. Cape. *Spatalanthus speciosus*.

Ribbon Grass. *Phalaris arundinacea picta*.

Ribbon Tree. *Plagianthus betulinus*.

Ri'bes. Currant, Gooseberry. From *Ribas*, the name of an acid plant mentioned by the Arabian physicians, and which is known to be *Rheum ribes*. Nat. Ord. *Saxifragaceæ*.

Our garden varieties of Currants have all originated from *R. rubrum*, a native of northern Europe; and the same species is also indigenous to the swamps of New Hampshire, north, and west to Wisconsin. The berries of this shrub are uniformly red in their wild state. The white, bronze, and other varieties, have been produced under cultivation. To the Dutch we are indebted for the first endeavors to improve this fruit by cultivation, the nurserymen of other nations having paid but little, if any, attention to this branch

of fruit-culture. At what date any of our choice varieties were produced we are unable to state; but little improvement was made, however, previous to the nineteenth century, though the Dutch cultivated a white Currant in 1729. The Black Currant, *R. nigrum*, is a native of most parts of Europe, and abounds in the woods of Russia and Siberia. Cultivation has added but little to its quality; its taste is peculiar, and to most persons disagreeable. It is used chiefly for jellies. *R. aureum*, the Buffalo or Missouri Currant, is an ornamental shrub, remarkable for the spicy fragrance of its yellow blossoms in early spring. It is widely cultivated, and would be one of the most desirable shrubs were it not for its tendency to sucker and spread itself beyond bounds. *R. sanguineum*, is another ornamental variety, with rich crimson flowers, the plant growing to a height of eight or ten feet. The Gooseberry, *R. Grossularia*, is a native of the United States, from Virginia northward, and west to Wisconsin, and also of northern Europe. From this species most of our garden varieties have originated. The natural fruit is small, and has less flavor than the cultivated sorts. The English have made great improvements in the Gooseberry. Their favorite sorts are not adapted to this climate, however, owing to their tendency to mildew. An exception to this, however, is found in Paterson, N. J., where some English mechanics grow them in great perfection. *P. hirtellum* is a smooth-fruited species, common in moist grounds from New England to Illinois. Under cultivation this species has been greatly improved, and its varieties are now generally grown in our gardens. There are several species with rough or prickly fruit, common throughout the Northern States; they are, however, of little value for their fruit.

Rib Grass. The common name of *Plantago lanceolata.*

Rice. The common name of *Oryza sativa.*

Rice. Canada or Indian. *Zizania aquatica.*

Rice Flower. The genus *Pimelia.*

Rice-paper Plant. Chinese, *Aralia* or *Fatsia papyrifera.*

Rice-paper Plant. Malay. See *Scævola.*

Rice. Water or Wild. *Zizania aquatica.*

Richa'rdia. Calla, Egyptian Lily, Lily of the Nile. Named after *L. C. Richard*, an eminent French botanist. Nat. Ord. *Aroideæ.*

Calla, the popular name of this genus, was given to it by Pliny. There are but five species, all natives of Africa. The *Calla*, or *Richardia Africana*, or *Æthiopica*, is a native of the Cape of Good Hope, and was introduced into England in 1731. It is a well-known plant of easy culture; the only particular attention it requires is constant watering, and as warm a room as can conveniently be given it. The Calla is largely grown for winter flowers, and is of the easiest culture. Although it will grow and flower during the entire season without resting, if sufficiently fed, by being re-potted, yet it is more profitable to dry it partially off, say from June 1st to October 1st. This is best done by placing the pots on their sides, so as to prevent the rains from wetting the soil, and covering them slightly with hay or moss, so as to keep the sun from drying the roots too much; or, if a position of partial shade can be had, there will be no need of covering the pots. The roots thus rested will flower more abundantly and produce fewer leaves, and thus twice the number of flowers may be obtained from the same space. It is not well to give the Calla too much pot room, else too much foliage is produced. We have found the best method to be not to use too large pots, and to use liquid manure freely. When an excess of leaves occurs, cut them off freely, withholding water somewhat for a week or so after cutting the leaves off. By this method the plants can be grown closely together, and a larger crop of flowers obtained from the same space. The Calla is one of the best of winter-flowering plants for room culture, needing little care beyond abundant water and an occasional syringing or washing of the leaves to keep them free from dust. The summer treatment and re-potting will be the same as recommended above. It is also a good plant for a large aquarium. *R. hastata*, the Yellow Calla, introduced in 1859, is very similar to the above both in leaves and growth, but the flowers are of a greenish-yellow color. *R. albo-maculata*, a species with beautifully variegated or spotted foliage, makes a showy plant. The flowers are smaller than the Calla, and white, with purple throat. It comes into flower in June, making it valuable for a succession. It is also desirable in a collection of plants with variegated foliage. The so-called Crimson and Black Callas are species of *Arum* (which see). The species are all propagated by offsets, which should be taken off when the plant is at rest, and grown on in small pots for one season.

Richardso'nia. Named in honor of *R. Richardson*, an English botanist, who published a work on horticulture in 1699. Nat. Ord. *Rubiaceæ.*

R. Scabra, the Mexican Coca-plant, has been employed in medicine under the name of White Ipecacuanha. The genus contains five or six species, probably none of which are in cultivation.

Rici'nus. Castor Oil Plant. From *ricinus*, a tick; resemblance in the seeds. Nat Ord. *Euphorbiaceæ.*

A monotypic genus of tall-growing, half-hardy annuals, natives of Africa and the East Indies. *R. communis*, the seeds of which yield Castor Oil, is a native of India, but is now extensively cultivated in the warmer regions of the globe. It is largely grown in southern Illinois and Missouri much in the same manner as Indian Corn. The produce of seed per acre is about twenty bushels. It is estimated that those States alone produce annually half a million gallons of oil. The pomace is used as a manure. There are a number of varieties grown in the garden, differing but little in general appearance, but varying in color and size. Some of them, as Cambogiensis, Gibsoni, Sanguineus, etc., have bronzy-purplish leaves, and are exceedingly showy as a centre plant in a sub-tropical bed, the outer circles to be of Cannas in variety, or Caladium esculentum. The plants are easily grown from seeds, which should be started in small pots in the green-house about the first of March, and turned out as soon as

RHODANTHE.

RHODODENDRON CATAWBIENSE.

ODODENDRON FERRUGINEUM.

RICHARDIA ALBO-MACULATA.

RIVINIA HUMILIS.

RICHARDIA ÆTHIOPICA.

RICINUS CAMBOGIENSIS.

ROMNEYA COULTERI.

ROSE (WM. FRANCIS BENNETT).

ROSE (AMERICAN BEAUTY).

ROSE ("LITTLE GEM" MOSS).

all danger from frost is past. Introduced in 1548.

Rigide'lla. From *rigidus*, stiff; in allusion to the stiffness of the flower stalk when supporting the seed-vessels. Nat. Ord. *Iridaceæ*.

A small but very beautiful genus of plants, natives of Mexico. *R. flammea*, is one of the most interesting species. It grows from three to five feet high, with very broad and curiously plicate leaves, which look as though they had been regularly plaited artificially. The flowers are numerous, of a bright flame color, all issuing from one spathe, and opening only one at a time. The plant is of easy culture, requiring in all respects the same treatment as the *Tigridia*. Introduced into Britain in 1838.

Ringed. Surrounded by elevated or depressed circular lines or bands, as the roots or stems of some plants, the cups of several species of *Quercus*, etc.

Ringent. Gaping, like the mouth of a bilabiate corolla, as *Antirrhinum*.

Riparious. Growing on the banks of rivers or lakes.

Ripo'gonum. See *Rhipogonum*.

Ri'vea. Named after *A. de la Rive*, a botanist of Geneva. Nat. Ord. *Convolvulaceæ*.

Very beautiful green-house evergreen twiners, allied to *Ipomœa*, natives of the East Indies. The ease with which the many annuals of this natural order are grown causes the more tender kinds to be neglected, or lost sight of altogether. *R. hypocrateriformis* (salver-shaped), the Midnapore Creeper, has large, pure white flowers, expanding at sunset, with a fragrance resembling that of the finest cloves. Don says this species is the prince of convolvulaceous plants.

Rivi'na. Named after *A. Q. Rivinus*, a botanist of Saxony. Nat. Ord. *Phytolaccaceæ*.

Green-house evergreen shrubs, natives of South America and the West Indies. *R. humilis* is commonly grown in green-houses for its beautiful racemes of little bright scarlet berries. It is called in the West Indies Rouge Plant, the juice of the berries being used as a cosmetic. *R. rivularis*, is a stronger-growing plant than the above, but in other respects is much the same. Propagated by seeds or from cuttings. Introduced in 1804. Syn. *Piercea*.

Roast-beef Plant. A common name for *Iris fœtidissima*.

Robi'nia. Locust Tree. Honey Bean. Named in honor of *Jean Robin*, a French botanist, once herbalist to Henry IV. of France. Nat. Ord. *Leguminosæ*.

R. Pseudacacia, False Acacia, is the common Yellow Locust, indigenous to the Middle and Southern States. It is extensively grown in many parts of the country for the valuable timber it furnishes, as being the most durable of all wood for posts, or where it comes in contact with the earth. It is one of our most valuable lumber trees, and is largely used for various mechanical purposes. *R. hispida*, or Rose Acacia, is a handsome shrub, with long racemes of beautiful rose-colored flowers without fragrance; a marked contrast to the foregoing species. It is a native of the Southern States, from Virginia southward; is commonly cultivated with ornamental shrubs.

Rocambole. (*Allium Scorodoprasum*). A hardy perennial, cultivated for the use of its bulbs in a somewhat similar way to those of Garlic. Increase is effected by dividing the bulbs, which form annually, at the root, and also on the top of the stems.

Ro'chea. Named after *M. de la Roche*, a botanical writer. Nat. Ord. *Crassulaceæ*.

A genus of green-house evergreen succulents, allied to *Crassula*, and requiring the same general treatment They are natives of the Cape of Good Hope. Several of the species are under cultivation, their singular leaves and bright flowers making them attractive specimens. *R. falcata*, one of the best, is propagated by cuttings. *Kalosanthes* (*Crassula*) *coccinea* is placed under this order by several authorities.

Rock Beauty. A common name for *Draba Pyrenaica*.

Rock-Cress. See *Arabis*.

Rocket. See *Hesperis*.

Rocket. Candytuft. *Iberis coronaria*.

Rocket. Dyer's. *Reseda luteola*.

Rocket. Larkspur. *Delphinium ajacis*.

Rock Lychnis. See *Viscaria*.

Rock Rose. See *Cistus*.

Rock Gardens. These may be looked upon as comparatively modern institutions, while Rockeries are of ancient date. The latter are excellent in their way, but depend much on the nature of the material at the command of the operator, and on being constructed in such a manner as to produce a landscape effect. Although in Rock Gardens the arrangement and formal distribution of the plants are specially to be considered, it is, however, unnecessary that artistic effect should be altogether ignored, for it is quite possible to have a graceful arrangement without sacrificing the individual health and habit of the plants. Many of the best and rarest species will not succeed as well elsewhere as they do among the crevices on an elevated and well-drained piece of rock-garden, which, in addition, affords a situation for an endless variety of hardy and half-hardy plants.

The late Mr. Hanson, after trying many locations and aspects, found he could grow many of the rarer Lilies to the best advantage when planted close by large stones in his rock-garden, which, indeed, he made specially for them.

There are few gardens where something of this sort might not be constructed and rendered attractive, especially in localities where stones are plentiful. It may be introduced for various reasons, such as hiding any unsightly object of limited height, or for giving diversity to an otherwise flat and uninteresting scene, or for giving a reason for a curved line—for there should be no deviation from a straight line in the garden unless for cause. It may also be successfully formed where the surface is generally flat by digging a deep cutting of an irregular outline through a piece of ground, and utilizing the soil thus obtained as mounds of uneven heights along the upper parts on either side, whereon dwarf

trees, shrubs and evergreens may be planted as a background, and for affording shelter. The stones should be arranged to form cavities of irregular size and shape, for the accommodation of various plants from the sides of a walk made in the centre of the cutting, up the gradual slope until the shrubs or background is reached. Formality must be avoided as much as possible in the arrangement, and the stones should be deeply imbedded in order to hold them firmly.

The rock-gardens at the Kew Botanic Gardens (London), and at the Botanic Gardens at Edinburgh (Scotland), are probably as fine examples as are to be found anywhere; the latter containing upwards of five thousand compartments, of which over three thousand are filled with various species and varieties of alpine and dwarf herbaceous plants, besides numerous dwarf shrubby kinds from all temperate parts of the globe. The remainder with free-flowering duplicates, placed at uniform distances to please the eye of those whose taste is more for color, but even to the botanical cultivator such free-flowering duplicate masses cannot fail to be otherwise than extremely interesting. All the irregular interstices between the plant compartments are filled with bulbous plants such as species of *Tritelia, Calliprora, Calochortus, Cyclobothra, Cyclamen, Sisyrinchium grandiflorum*, etc., and among them nothing more pleasing than *Iris reticulata*, which flowers abundantly in such situations. Many of the larger compartments are filled with spring-flowering bulbous plants, such as the common and *Crimean Snow-drop*, varieties of *Scilla, Puschkinia, Grape Hyacinth, vernal Snow-flake, Bulbocodium, dwarf Narcissus*, etc. After the spring bulbs are done blooming and cut down, a little good soil is placed on the surface and the spaces are filled with dwarf annuals and shallow-rooted summer-flowering herbaceous plants, such as *Leptosiphons, Clintonias, Gilias, Mesembryanthemums, Holosteum umbellatum, Myosurus minnus, Linaria alpina, Papaver alpinum, dwarf Lobelias*, etc. Such plants are all removed as soon as injured by frost, and the surface again covered with a little fresh soil, to protect the seeds of the annuals used. Large divisions are also appropriated for a selection of monocotyledonous plants, exclusive of bulbs, such as the dwarf and herbaceous species of *Iris* and *Yucca*, also species of *Cordyline, Sparaxis, Helonias, Ophiopogon, Trillium, terrestrial Orchids, Convallaria, Uvularia, Narthecium, Tofeldia, Acorus*, rare species of *alpine Carex*, etc.

Every plant is distinctly labeled with its botanical name and native country; often with its popular name or other interesting peculiarity, rendering it at all seasons one of the most delightful as well as instructive portions of the whole botanic garden. Every one who has seen these rock-plants at the Botanic Gardens of Kew (London), or at Edinburgh, is charmed with the effect. In the rock garden at Edinburgh over three thousand species of plants have been grown, a list of nearly fifteen hundred of which was published by the curator of the gardens in the transactions of the Botanical Society for 1887–'88, as having flowered during 1887; and being not mere botanical curiosities, but well selected species of plants suitable for rock-

gardens, is just such a list as intending planters would do well to inspect.

While destitute yet of a botanic garden worthy of the name in America, yet there are grand opportunities for such collections in many of our public parks here, which would certainly be as interesting as the unvarying masses of color from Coleus and other bedding plants. We saw some very fine rock-work, exceedingly well planted, in the Boston Public Gardens in 1888, which seemed more attractive to the public than anything else in these very well planted grounds.

Rock-work. Often, on cleaning up after the formation of new grounds, masses of rock and stumps are present, which are often difficult materials to get rid of; such may be arranged in natural-looking mounds or screens for wind-breaks, which, when the interstices are filled in with soil and planted with bright-leaved or bright-flowering plants, can be made most attractive; or in locations where rocks exist in their natural condition, they can be made highly interesting and ornamental by setting out plants of a drooping or creeping habit to overhang among them. The rocky caves in the grounds of the National Soldiers' Home, at Dayton, Ohio, have been so utilized both inside and out, and are one of the most attractive objects of that grandly kept place. Purely artificial "rock-work" may be made by clinkers from iron or other furnaces being dipped in water-lime or cement, which gives a pleasing drab-color to their grotesque shapes. These are used in building the "rock-work" to the shape and dimensions wanted, care being taken, that, in forming the upper courses, cavities eight or twelve inches deep and wide be left to be filled with soil in which to grow the plants. For this style of rock-work, in addition to the many plants grown for their pleasing or distinct foliage, bright colors may be used to a considerable extent to contrast with the ground-work, such as bright-colored Verbenas, Coleus, Lobelias, Rose-colored Geraniums, Golden Moneywort, and many other similar plants can be used with effect. A rockery so formed and planted even without having any pretensions to being natural, is always an attractive and interesting object, more especially if placed out of view of formal surroundings of any kind. See Rock-garden.

Rodrigue'zia. Named after *E. Rodriguez*, a Spanish physician and botanist. Nat. Ord. *Orchidaceæ*.

Epiphytal Orchids, natives of South America. There is but one species generally cultivated, *R. secunda*, which has flower spikes from six to nine inches long, with carmine red flowers arranged on one side. It blooms freely in the autumn and winter months, requiring the same care given the *Cattleya*. Introduced in 1820. This genus is closely allied to *Burlingtonia*.

Rods. Boning or Borning. This name is given to instruments used in leveling ground, or for determining heights in making a uniform incline. They are indispensable when laying out walks or edges, leveling sod, and other operations of a like nature. Three are generally used, and are made of equal length, about three and a half or four feet long, provided with cross-pieces, which should

be fixed in the centre and at exact right angles. Before using them it is necessary that two points should be fixed, preferably at the extreme ends of the ground to be leveled. If level pegs are inserted at these points, and two of the three rods allowed to rest on them, as many intermediate pegs may be inserted as are thought necessary. This is done by a third person with the other rod, who drives the pegs in as he is directed from one of the ends. The tops of the pegs, if the leveling is properly done, should then show all the inequalities in the soil for the guidance of the workmen. As the light is found most deceiving at a distance, one of the rods is sometimes made an inch longer than the others, and a small hole pierced through the cross-piece, by using which many may be able to work more correctly than if all the rods were of equal length.

Roe'lla. African Hare-bell. In honor of *William Roell*, Professor of Anatomy at Amsterdam. Nat. Ord. *Campanulaceæ.*

A genus of greenhouse shrubs or spreading herbs, natives of South Africa; they have generally blue flowers, which have somewhat of the dazzling glossy hue of Venus's Looking Glass. The shrubby kinds are of low growth, and rather difficult to propagate; but the annual species are of very easy culture, and only require the usual treatment of half-hardy annuals.

Rœme'ria. Purple Horned-Poppy. In honor of *John James Rœmer*, professor of botany at Landshut, and author of several botanical works. Nat. Ord. *Papaveraceæ.*

R. hybrida, the violet-flowered Horned-Poppy or Wind Rose, the best known species, is a very beautiful purple, annual flower; but, unfortunately, its beauty is so very short-lived that it is difficult to find a perfect flower, as one or two of its petals drop almost as soon as the flower expands. It is quite hardy, and only requires to have its seeds sown in the open border in April.

Roe'zlia. Named in honor of *Roezl*, a well-known collector who travelled in Central America, Mexico, etc. Nat. Ord. *Melastomaceæ.*

R. Granadensis, the only species yet introduced, is an erect plant-stove shrub, with carmine-purple flowers, and opposite, ovate-lanceolate, hairy leaves. It was introduced in 1872, and is easily increased by cuttings.

Roffia. See *Raphia.*

Rogie'ra. In honor of *M. Charles Rogier*, a Belgian statesman. Nat. Ord. *Rubiaceæ.*

A small genus of evergreen shrubs from Central America, allied to *Rondeletia.* In general appearance they resemble the *Laurustinus.* They are very pretty green-house plants with bright pink flowers, and are easily increased by cuttings.

Ro'hdea. In honor of *M. Rohde.* Nat. Ord. *Liliaceæ.*

R. Japonica is the only known species of this genus. It is a green-house, herbaceous, nearly aquatic plant, and a very interesting one for the green-house, having dark-green foliage and spikes of creamy white flowers, which are succeeded by spikes of showy fruit. There are three variegated varieties of this plant, all of which are most showy green-house plants, and are well worthy of cultivation. Syn. *Orontium Japonicum.*

Rollers and Rolling. The importance of, and the benefit derived from, using a roller on the lawn, especially in spring, is not fully appreciated. Freezing and thawing during winter causes the ground to heave and become uneven, and if it is not pressed back firmly with a roller, before hot weather, the grass is apt to be injured, or even killed in spots, besides leaving the surface very uneven for the mower. They are also useful for pulverizing the soil in the garden if it gets very dry and hard, as well as for firming in seeds such as Onions, Turnips, etc., that are generally sown in large breadths, and where they can be used to advantage. They are also requisite in every well-kept garden for keeping the walks firm and in good condition. They are, moreover, indispensable on the farm, both for firming the pasture in early spring, and compacting the earth round newly sown seeds, etc. We quote from our work, "How the Farm Pays," page 46. "While you, as a gardener, advocate the use of the feet to firm the soil, in sowing and planting, I, as a farmer, advocate the use of the roller. The object in both is the same; and I am satisfied beyond any shadow of a doubt, that millions and millions of dollars are annually lost to the farming community, through a want of the knowledge of the vast importance of firming the soil over the seed. This is particularly the case with Buckwheat, Turnips and other crops that are sown from the month of July until September, as at such seasons we very often have long-continued droughts, and the soil is like a hot ash-heap, and to expect germination from small seeds when sown in such soils, without being firmed against the entrance of the hot air, is just about as useless as if we threw them in the fire."

Roman Hyacinth. See Hyacinth.

Romanzo'ffia. Named in honor of *Count Romanzov*, a Russian nobleman, who was a patron of scientific studies. Nat. Ord. *Hydrophyllaceæ.*

A genus of only two species of dwarf herbaceous perennials, having much the appearance of Saxifrages, natives of the sub-arctic regions of eastern Asia and western America. *R. Sitchensis*, the Sitka Water Leaf, the only species yet introduced, is a dwarf plant with reniform leaves, and white flowers; it is an excellent plant for the rock-garden.

Rome'ria. A synonym of *Rœmeria*, which see.

Ro'mneya. The Californian Tree Poppy. Named after *The Rev. T. Romney Robinson*, an astronomer, of Armagh. Nat. Ord. *Papaveraceæ.*

R. Coulteri, the only species, is a very showy, tall, glabrous, herbaceous perennial, with large white flowers terminating the branches. It is increased by seeds in spring, and requires protection in winter. A native of California, introduced to cultivation in 1875.

Romule'a. Commemorative of *Romulus*, the founder of Rome. Nat. Ord. *Iridaceæ.*

A genus of very pretty hardy or green-house bulbs, removed from *Trichonema.* They are natives of western Europe, the Mediterranean

region, and South and West Africa. They require the protection of a frame, and are increased by offsets.

Rondele'tia. In honor of *William Rondelet, M. D.*, a famous natural historian of Montpellier. Nat. Ord. *Rubiaceæ.*

Beautiful hot-house plants, with white, yellow, or reddish flowers, natives of the East and West Indies. *R. odorata* (syn. *R. speciosa*), the most common species, has terminal corymbs of scarlet flowers greatly resembling those of *Ixora coccinea.* The flowers are produced in great abundance. One of the best known in our collections is *R. amœna*, bearing beautiful pink flowers freely. They are propagated by cuttings, and were first introduced in 1752.

Roof-Foil. A name suggested by *Ruskin* for the House-leek, *Sempervivum tectorum.*

Root Cuttings. See "Propagation by Root Cuttings."

Rosa. Rose. From the Celtic *rhod*, red, the prevailing color of the flowers. Nat. Ord. *Rosaceæ.*

We find mention of the Rose in the earliest writings, both sacred and profane. So invariably have the writers seemingly been intoxicated with its beauty that they have entirely forgotten or ignored its early history and culture, leaving us in profound ignorance as to the origin of some of our most highly-prized species or varieties. It was undoubtedly very generally esteemed, and used for ornamentation on both public and private occasions. As an instance, it may be mentioned that the Romans put it to a very significant use at some of their private feasts or dinners. A Rose was placed over the principal door, and he who passed under it silently bound himself not to reveal anything that was said or done within; hence arose the saying, *sub-rosa*, under the Rose; and even now to tell a friend anything *sub-rosa*, implies that he shall not reveal it. The limit of this work will allow but a brief history and description of the various classes. The species, numbering upwards of one hundred, are found disseminated throughout America, Europe, Asia, and Africa. Australia, so prolific in rare and beautiful flowers, has not as yet contributed a single species, while Siberia, Iceland, Greenland, and Kamtschatka are fairly represented. China, Persia, and India have furnished some of the finest species. From all this material, cultivators have created varieties almost innumerable. From *R. spinosissima*, the type of those indigenous to Great Britain, nearly three hundred varieties have sprung, which are known as Scotch Roses, though these are not as much valued as many other classes. The Cabbage or Provence Rose (*R. centifolia*) is one of the best known and oldest of the family. It is a native of Eastern Caucasus, and is supposed to be the hundred-leaved Rose of Pliny. It was introduced into the British Gardens in 1596. More than a hundred fine hybrid varieties had been produced by the French and English gardeners between this and *R. Gallica*, which are known under the general name of Provence Roses. They are all very beautiful and fragrant, and all distinguished by their close, cabbage-like form, the curving inward of their petals, and their slender footstalks, which give a peculiarly graceful and

drooping appearance to the fully developed flowers. The Unique Provence is claimed to be of English origin, having been observed for the first time in 1777, growing in a cottage garden. It was probably one of those accidental variations of flowers commonly termed "sports," which sometimes take place in plants, one branch, shoot, or sucker producing striped or variegated flowers, while the original remains self-colored. The Unique Provence is pure white, of full size, globular form, and exceedingly fragrant. From this the Striped Provence is said to have been a sport. Its flowers are white, striped with deep rose. It is by no means constant, as some of the flowers will be wholly pink, others pure white, the two being frequently met with on the same branch. The Moss Rose (*R. centifolia muscosa*), the history of which is unknown, has by common consent been considered an accidental sport from the Provence Rose. This theory is strengthened by the fact that plants produced by the seed of the Moss Rose do not always show moss, probably not more than one in three doing so; those that do not, possess all the characteristics of the Cabbage or Provence Rose. The earliest history we have of it is, that it was sent to England from Holland in 1596, since which time many new kinds have been produced from seed and from sports of the original. The Crested Moss (*R. cristata*) is a sport accidentally found growing out of an old wall at Friburg, in Switzerland. This class, like the Provence, requires the highest cultivation; a deep, strong, rich loam is required for the perfection of these more than any other class of Roses. The French (*R. Gallica*) is indigenous to the hedges of France and Italy. It is credited with being the *R. Millesiana* of Pliny, and is among the earliest cultivated garden Roses. This section contains a large number of our variegated varieties, all having their parentage in *R. Gallica versicolor.* This family is very extensive, and unsurpassed for perfection of form or richness of color. They are compact, erect-growing plants, producing large, open, flat flowers, borne on stiff, erect flower-stalks, thus forming a marked contrast to the Cabbage Rose. Of this there are probably two hundred varieties. They are extensively grown in the neighborhood of Paris for the purpose of making the Attar of Roses. The Hybrid Provence Roses (*R. centifolia hybrida*) are hybrids between the French and Provence Rose. Nearly all the varieties are remarkable for their large, well-formed and very fragrant flowers. They are mostly vigorous growers, requiring but little care in cultivation. The Hybrid China Rose (*R. Indica hybrida*) owes its origin to the Bourbon, China, and Tea-scented Noisette, crossed with the French, Provence, and other summer Roses, and also to the latter crossed with the former. The varieties first obtained from this crossing arose from accident, the effect of which was a systematic effort that resulted in producing some magnificent Roses. Mr. Rivers, a celebrated rosarian, in speaking of these hybrids, remarks: "They give a long continuance of bloom, but never put forth secondary or autumnal flowers. This is a most peculiarly distinguished trait, and an interesting fact. Impregnate a Bourbon, China, or Noisette Rose, all abundant

bloomers, with the farina of a French or Provence Rose, and you entirely take away the tendency of autumnal blooming in their offspring." The plants of this section are of very vigorous habit, and the flowers combine all the properties desired in the Rose, viz., size, form, fullness, and exquisite coloring. The Hybrid Bourbon (*R. Borboniana hybrida*) owes its origin to the Bourbon Rose, which is itself a hybrid. There is some uncertainty about the crossing; it is supposed to have been *R. Indica* and *R. Damascena*. They are a very beautiful class of Roses, large and rather flat, with rich, velvet-like petals, much darker inside than on the outside of the flower. They flower moderately well in autumn. The original species of the White Rose (*Rosa alba*) is a native of the central part of Europe, and was introduced into Great Britain in 1597. The flowers are small; the colors are white, blush, flesh and pink. They are readily distinguished from all other Roses by a glaucous appearance of the foliage, which appears as if covered with a grayish, impalpable powder, and by the shoots being almost spineless. They are perfectly hardy, and of easy cultivation. A type of this class is finely represented by the well-known variety *Madame Plantier*. The original species of the Damask Rose (*R. Damascena*), is a native of Syria, and was introduced into Europe in 1573. It is now, as formerly, largely cultivated in the gardens of Damascus for the purpose of making Rose-water, Attar of Roses, etc. Nearly all the Perpetual Roses, now so much sought after, owe their origin to the older members of this family, which may readily be distinguished from other Roses by their rough spiny shoots and leather-like leaves. They are all of robust habit, and have large, well-formed flowers. The Sweet Brier (*R. rubiginosa*) is indigenous to many parts of Great Britain in its native or single state; it has become naturalized in many parts of the United States. Not content with the delightful fragrance of the foliage, art has added several varieties with double bright rose-colored and crimson flowers. The best of them is Celestial Sweet Brier, with flowers very double and fragrant. The Austrian Brier (*R. lutea*) is a native of the North of Italy. Its stems are spiny, and of a reddish-brown color; it has a straggling habit of growth, leaves quite small, and flowers of copper and yellow color. From this species has sprung the Persian Yellow, which is said to have originated in Persia, hence its name; also the Harrison Rose, a variety that originated in this country. These two are as yet the best hardy yellow Roses that have been produced. The Double Yellow Rose (*R. sulphurea*) is very beautiful in warm climates; but the flowers are produced with so much difficulty that it is rarely met with. The origin of this Rose is unknown. It is rarely seen in collections. The Alpine or Mountain Rose of the south of France and the Alps, is the type from which the Boursault Rose (*R. Alpina*), a very distinct family of Roses, sprung. It was originated by M. Boursault, of Paris, in whose honor it was named, and is remarkable for the abundance of flowers it produces. It is perfectly hardy, and well adapted for covering walls or trellises. The Banksian Rose (*R. Banksiana*), a native

of China, was introduced in 1807, and was named in compliment to Lady Banks. There are several varieties, producing immense clusters of white or yellow-colored flowers. The plant is a rapid climber, beautiful in foliage and graceful in habit. As it is an annual flowering species, and too tender to stand the severity of our winters, even if protected, it does not meet with favor among our Rose-growers. The original of the Many-flowered Rose (*R. multiflora*) was introduced in 1804 from Japan by the celebrated botanist Thunberg. Growers in France and Italy have since then originated several varieties, of which *R. Grevillei* is a fair representative. They are annual bloomers, but too tender to live out without protection north of Virginia. The prairie Rose, *R. setgera* (syn. *R. rubrifolia fenestralis*), is of American origin, the type being the single-flowering Climbing Rose of the Prairies, from which have originated several double-flowering sorts, the best known of which are the Queen of the Prairies and the Gem of the Prairies. The flowers are light crimson, sometimes striped with white. Though wholly devoid of fragrance, they well deserve a place in every collection. They are perfectly hardy, of the easiest culture, and flower with great profusion. The origin of the Hybrid Climbing Roses is entirely unknown, and they present traces of so many sections that conjecture on this point is useless. Their hardiness in this climate has not been tested sufficiently to warrant an opinion as to their usefulness here. The Evergreen Rose (*R. sempervirens*) is of Italian origin, though the French have produced many of the varieties. In our Northern States it could scarcely be called an "evergreen;" at the South it could. The varieties are among the most valuable of Climbing Roses, being free growers, perfectly hardy, and producing immense clusters in a variety of colors. The origin of the Ayrshire Rose (*R. arvensis* var. *scandens*), like that of many others, is unknown, though it is generally credited to Scotland. There are a number of varieties, all rapid growers, of easy culture, and well adapted for covering large trellises or arbors. The colors are white, rose, blush, etc.; unfortunately they are rather tender for this vicinity. The class known as the Hybrid Perpetual or Remontant Rose, has distanced all others. In it we have beauty of form, fragrance, depth and variety of color, united with a constitution so vigorous as to endure the severity of our Northern winters. They have been produced by crossing the Hybrid China Roses with different varieties of Chinas and Bourbons, and, to a limited extent, with the Teas. This crossing has resulted in imparting to the more hardy Roses, to some extent, the blooming qualities of the tender sorts without impairing the vigor of the former. It is a mistake to suppose that all Roses in this class are *perpetual* bloomers, as their name would imply. They are, without question, the most valuable for their abundance of bloom in June, and most of them will give an occasional flower during the summer, and in favorable seasons, a fair show in autumn; but to expect *continuous* bloom, as the Chinas and the Teas afford, would be a sad disappointment. As a class they are nearly all hardy in the Northern

States, and of easy culture, well adapted to be grown either as dwarfs or standards, and can with the greatest certainty be forced into bloom during winter and spring. Of the General Jacqueminot alone, which is a well-known representative of this class, probably ten acres of green-house surface are used for forcing the flowers for winter for the city of New York alone, and in nearly like proportions all over the Union. The parentage of the Damask Perpetual family is difficult to trace. It is generally credited in a great measure to the old white and red Monthly Roses. There is no authority for this supposition, and no hint even as to the other Roses with which they were crossed. They are perfectly hardy, exceedingly fragrant, and free flowering. The Perpetual Scotch (*R. spinosissima*) are hybrids. supposed to have been produced by crossing the Scotch Roses with the Damask Perpetuals. But little success has attended hybridizing these families, as there are but one or two varieties worth cultivating. The Bourbon or Isle de Bourbon Roses (*R. Borboniana*) are remarkable for their autumnal flowering, as they do not flower well until the first of September, after which they are in continuous bloom until checked by heavy frosts. They derive their name from the Isle de Bourbon, where they originated. The type of the race is said to have been an accidental seedling from a quantity that were planted for a hedge by one M. Peirchon, an inhabitant of the island. From many of its characteristics it is a supposed cross between the common China and one of the old Damask Perpetuals known as the Red Four-season Rose. The first plant was introduced into France in 1822, and at once attracted the attention of the leading Rose-growers at Paris, who commenced its cultivation extensively. Its tendency to vary was such, that within a short time a large number of seminal varieties were produced, from which some of our most desirable Roses have originated. Souvenir de la Malmaison, a light blush color (introduced about 1840), that has yet no equal as an autumnal flowering Rose, and the well-known Hermosa, pink, belong to this class. The Bourbons are distinguished for their fine foliage, compact habit of growth, and for the profusion and long-continuance of their blooming. They require a dry soil, only moderately rich. They are not perfectly hardy north of Washington, unless under very favorable circumstances. Of the perpetual Moss (*R. centifolia*) class, there are but few entitled to the name, and those only in the sense in which the Hybrid Perpetuals are; that is with grains of allowance, which will be cheerfully granted for the pleasure a Moss Rose in autumn affords. This section is a cross between the old Moss and some of the autumn-blooming varieties. The continuous, or rather second-flowering, has been produced at some sacrifice of the moss. As a class they are poor growers, requiring a strong, deep, rich soil. A well-known type of this class is James Veitch, deep crimson. The Musk Rose (*R. moschata*) is one of the oldest Roses in cultivation. The original is a native of Madeira, Persia, and the north of Africa. The plants are rapid growers and profuse bloomers, in habit resembling the Noisette, requiring the same protection in winter, and the same treatment in growing. They are late in flowering, not coming into bloom until about the first of September. They receive their name from the fact of their having a peculiar musk-like scent. They are not very hardy in most Rose-growing countries and, consequently, have received but little attention from growers. The China Rose (*R. Indica*) and the Crimson China Rose (*R. semperflorens*) are so nearly allied that their history, description, and treatment are the same. They are both natives of China, and were first introduced into Europe in 1789. The two species are the parents from which a rather extensive and interesting family of Roses have sprung. They are of comparatively small growth, which is a distinctive feature in all their progeny. They are very generally known as Bengal Roses. In our climate they are not sufficiently hardy north of Washington to endure the winters without the most careful protection. As garden roses they are very desirable, being abundant and continuous bloomers; but for cut flowers they cannot be highly recommended, although the deep crimson color of some of the varieties, as Douglas, for example, makes them grown to a considerable extent, even though the buds are small. The Tea-scented China Rose (*R. Indica odorata*), the type of this section, is a native of China, introduced into England in 1810, and, with the Yellow China or Tea-scented Rose previously introduced into France, became the parents of the best known and most extensively cultivated class in this country. They range through all the shades of yellow, orange, white, blush, pink, purple, and crimson, and have nearly all a marked tea fragrance. From the hundreds of varieties that have been produced it is difficult to determine the varieties that can be named as best. Those we name under the head of "Winter Culture of the Rose," are, perhaps, the best at the date of writing. Until 1877, no true striped Rose had been known to exist; but in that year a sport from the crimson-colored Bon Silene came distinctly striped crimson and white, and has continued to hold to this peculiar and beautiful form. It has been appropriately named the "American Banner," and created quite a sensation in Europe from its decided novelty of coloring. The whole class of Teas are the most tender of the great Rose family. There is no sure protection for them in the open border without more trouble and expense than the plants would be worth in spring time. Most amateurs have very sensibly given up "protecting" this class of Roses, and have found the more sure, easy, and inexpensive way to get Tea Roses is to procure young plants in spring, not more than four inches high, grown in thumb-pots; these, if planted in a good, strong, rich soil, will produce more flowers during the summer and autumn months than double their number of old plants "kept over." At the present writing we have of the many varieties of Teas several thousands; plants that, when put out in April, could not be seen half-way across the nursery rows, but which are now (October) averaging two Roses a day from each plant, and have been for the past two months. For out-of-door culture, treat Tea and all other tender Roses the same as any bedding plant;

ROS

that is, to depend upon young plants for the season's flowering. Tea Roses can be preserved without difficulty through the winter by taking up, potting, or "heeling" in a box of earth, and keeping them in a cool, dry cellar, where the thermometer will not fall below 25°. When planted out in spring they should be well cut back, and if carefully planted in a rich soil, they will be nearly as good as young plants. In California, and nearly all States south of Richmond, the Tea Rose requires no winter protection, and is there seen in the greatest perfection. The Macartney Rose (*R. bracteata*), a native of China, introduced into England in 1795 by Lord Macartney, from whom it took its name, is a climbing evergreen Rose. Like most of the Chinese Roses, it is not hardy, and its value for winter flowering is not sufficient to warrant growing it under glass. The Miniature Rose (*R. Lawrenciana*), is a native of China, and was formerly considered by botanists to be a distinct species. Mr. Rivers, of England, whose knowledge of the Rose is second to no one's, says it is but a dwarf variety of the common China Rose, like the Rose de Meaux or Pompon, which is a dwarf variety of *R. centifolia*. "Many plants," he remarks, "that have been long under cultivation have a tendency to produce from seed these pigmy likenesses of themselves." If there is any value in this class, it is as a curiosity for pot culture. The Cherokee Rose (*R. lævigata* or *R. Sinica*) is a large-flowered single variety, a native of China. In the Southern States, where it has become naturalized, it is held in high esteem for the graceful habit of the plant, with its vivid green, glossy leaves. The flowers are of the purest waxy white, and are produced in the greatest abundance. It is often used for hedges, and for this purpose few plants could be better adapted. The type of the Noisette group of Roses (*R. Noisettiana*) is a cross between the Musk Rose and the common China Rose. It was produced by M. Noisette, a French gardener, of Charlestown, South Carolina, in 1817. The seed was from the Musk Rose, and the plant partakes of its nature in its vigorous growth, and, to a limited extent, its fragrance, together with its habit of blooming in clusters; in all other respects it is entirely dissimilar from either parent. From this hybrid, some of our most useful and beautiful half-hardy Roses have originated, embracing several green-house varieties, the most superb of which is the Lamarque (white). This group contains some of quite dwarf habit; all are noted for producing their flowers in large clusters; this is particularly the case with the Washington, Fellenbergh and Aimée Vibert. The Maréchal Neil Rose of this section is, like the General Jacqueminot, most extensively forced under glass for its buds; probably three acres of glass surface are used for it in the vicinity of New York City, but it is now superseded by some of the yellow "Teas" which, though not quite equal to it in quality, flower continuously. Though not hardy north, nothing can exceed the beauty of many of this class of Roses in some of the Southern States, where the thermometer does not fall below 20°. The finest of all these is probably the old "Cloth of Gold," now rarely met with true, Solfaterre being often sold for

it. Mad. Caroline Kuster, Celine Forrestier, Triumph de Rennes, W. A. Richardson, and Gloire de Dijon, all yellow Roses belonging to this section, are of healthy habit and easy of cultivation. The Polyantha Remontant Rose (*R. Polyantha*) was brought from Japan by Robert Fortune about the year 1865, and is distinguished from all others by its panicled blooms. This peculiarity is not retained, however, when crossed with other Roses, at least in most of the varieties which have been claimed to be seedlings from it. Several varieties evidently crossed with a variety of *R. Indica*, have been produced and are very free flowering, highly scented, and most useful sorts, especially for bedding purposes, as they form a mass of bloom during the entire season. They are hardy in this latitude with slight protection, and are now largely used for borders to rosaries, cemetery plots, etc. The Hybrid Tea Rose (*Rosa Indica odorata hybrida*) is a group produced from crossing Teas with Hybrid Perpetuals. "La France" raised by Guillot fils, in 1867, from a Tea Rose, with a perfume peculiar to itself, a most constant bloomer and the sweetest of all Roses, was about the first variety sent out. In 1879, Mr. Henry Bennett (England), followed with his celebrated "pedigree" Roses, since which time there have been many notable additions to the class, which, on account of its novelty and usefulness, will in a few years very likely prove a more popular class than even the Hybrid Perpetuals. Standard Roses are produced by budding any desired variety on the common Dog Brier, or Manetti stock, the strongest growers known; consequently they give to the Rose the greatest amount of nourishment. In a moist, cool atmosphere, like that of England, Roses are grown in perfection upon standard, half-standard or dwarf stocks. In this country the dry, hot winds and scorching sun of summer, or the cold winds of winter, will destroy the vitality of the stock (particularly if on high standards), and they rarely live more than three or four years, and in no case will they produce such Roses in this country as in England or France, except in particularly favorable situations, such as a north aspect in our city gardens. We have known them in such positions to do exceedingly well, especially when the stem of the plant had been wrapped around with moss or straw to protect it against the summer sun. Where grown in the greatest perfection in England, stocks are selected that are the best adapted to the soil and situation in which they are to grow; these are planted about the first of November, and the highest cultivation possible is given them. In the following July they are budded with the most vigorous buds that can be had from plants put out the previous year *expressly* for the buds. In the following November they cut the shoots back to five or six inches, and in the following spring cut back to one or two buds, which will give the flowering shoots. For exhibition purposes but one bloom is allowed on each shoot, and that will be the perfect flower; and it is from such flowers, shown at the London exhibitions, that our American travelers give their orders, often paying enormous prices for Roses that, when grown under ordinary treatment here, never fail to disappoint. Were the English ama-

teurs to take their "standards" from nursery rows and keep them out of the ground for nearly two months, as is the case with us, and then give them but indifferent treatment, we doubt if their favorable climate would give them a Rose that would be recognized by those who have only grown them properly. *R. rugosa*, a Japanese species, first sent to this country by Commodore Perry, in 1855, is one of the handsomest hardy shrubs in cultivation. It forms a sturdy bush from four to five feet high, covered with large, dark green, pinnate, glossy foliage, and producing terminal clusters of ten to twenty flowers, three inches in diameter, of a bright rosy crimson color, and very fragrant. It continues in flower the whole summer, making a very attractive object. If it never produced a flower it would still be entitled to a prominent place on the lawn for the beauty of its foliage, which scarcely resembles that of the Rose, but is very heavy, rich, and shining, remaining on until late in Autumn. It is now well-known; both its rosy crimson and white varieties are found in all good collections; and its large handsome fruit is most showy during the autumn months.

CULTURE OF THE ROSE.

WINTER FORCING.—The intense interest now so generally taken in the culture of the Rose, not only for outside decoration, but for the production of Rose buds in winter, induces us to depart from the general rule adopted in this work, and give a full and detailed account of the methods of cultivation practiced in the vicinity of New York City, which is believed to be unequalled in any other part of the world, particularly in the methods in use for the *winter forcing of the Rose*. For this purpose, strong, healthy cuttings are put in to root any time from September to February. We keep the sand in our cutting benches about 65° or 70°, with the temperature of the house 10° less. Rose cuttings, under these conditions, will root in from twenty to twenty-five days, and are then potted in any good soil in two and a half inch pots, and placed in a green-house having a night temperature of about 50°, with 10° to 15° more in the daytime. The young Roses are regularly shifted into larger pots as soon as the "ball," gets filled with roots, great care being taken that the plants at no time get pot-bound. Syringing is done once a day to keep down red spider, and fumigating by burning tobacco stems to kill the Aphis or Green Fly must be done twice a week. With such attention, plants which were put in as cuttings at the season named above, by the middle of July will be from one and a half to two feet in height, with roots enough to fill a six-inch pot. Now, if intended to be grown in pots, the shifting into larger pots should be continued whenever the ball gets filled with roots (which is usually in about five or six weeks after every shift), until the 1st of October, when they will have reached a size requiring a pot of eight or nine inches in diameter. They are then in condition for winter forcing, no further shifting being required. But if they are wanted to be planted out on benches, or in solid beds of soil, the planting should be made from the pots from the 15th of May to the 15th of August.

There is quite a difference of opinion as to whether the Roses can be best grown in solid beds or raised benches. We believe that it really makes but little difference, as we find them grown with nearly equal success by both methods where the drainage is perfect, although the method mainly in use in the vicinity of New York (where, at present writing, Roses are probably grown better than anywhere else in the country) is the raised bench system. The green-houses used are about twenty feet wide, and are what is known as three-quarter span: that is, three-quarters of the glass roof slopes to the south at an angle of about thirty degrees, while the other quarter slopes north at an angle of twenty degrees, giving a base space for the benches on which the Roses are to be planted, taking out the walks, of about fifteen feet. The benches may be either a level platform, or divided into four or five platforms about three feet wide, or so as to be about equal distances from the glass; the bottom of the benches may be from three to five feet from the glass, as desired. There is no necessity for bottom heat for Roses, so that it is best to have the pipes for heating run under the front and back benches of the Rose house, with none under the middle benches. The soil in which the Roses are to be grown should not be more than four to five inches deep, the boards so arranged as to allow free drainage for the water; we use boards three inches wide. The soil is that made from sods cut three or four inches deep from any good, loamy, pasture land, well chopped up, to which is added one-fourth of well-rotted cow manure, together with about one-thirtieth of this bulk of pure broken bones and bone dust. It is perhaps best to let the sod be well rotted before being used, although, if not convenient, it will do fresh, if well chopped up. The distance for Roses such as we describe (those that have been grown in six-inch pots, and average twenty inches high) should be one foot each way, so as to get the full benefit of a crop. It is true that, if planted twice that distance, they would be thick enough before spring; but they would not fill up sufficiently until the middle of January if planted much wider than one foot. The temperature at which Roses are grown in winter is an average of 50° to 55° at night, with 10° to 15° higher during the day. Watering is a matter of the first importance, and requires some experience to know what is the proper condition. As a guide, whenever the soil shows indications of being dry on the top, a thorough watering should be given, sufficient to completely saturate the soil. Such a watering will not usually be required more than once in two weeks. Syringing in clear weather should be done once a day, sufficient only to moisten the foliage. If done heavily it would keep the soil too wet. Fumigating with tobacco for the suppression of the Aphis (Green Fly) should be done twice a week, but in winter, while the flowers are being cut, strew tobacco stems on the pathways, or place them in the evaporating pans on the pipes to keep up a flavor of tobacco in the house, which acts as a preventative. The varieties grown are changing every season, and no list we can give to-day is likely to remain as the best ten years hence. The favorite Tea Roses now

ROSE (THE "DINSMORE").

ROSE (STANDARD).

ROSE (MME. DE WATTEVILLE).

ROSE (PAPA GONTIER).

RUBUS (BLACKBERRY, EARLY HARVEST).

RUBUS (DEWBERRY, LUCRETIA).

RUBUS (BLACKBERRY, WILSON, JR.).

RUBUS (BLACK RASPBERRY, TYLER).

RUBUS (RASPBERRY, THE HANSELL).

grown for winter are Perle des Jardins (yellow), Niphetos (white), Catharine Mermet (rose), Bride (white), Papa Gontier (crimson), La France (light rose), American Beauty (light crimson), Souvenir de Wooton (crimson), Madame de Watteville (carmine and white), and Sunset (orange). There are still a number of the older sorts, such as Safrano, Douglas, and Isabella Sprunt, yet grown; but they are fast giving way to what is known as "fancy" Roses, of which the yellow variety, Perle des Jardins, is a type. Of Climbing Roses, which are grown on the rafters of the green-house, Maréchal Neil (yellow), Lamarque (white), James Sprunt (crimson), Gloire de Dijon (salmon yellow), and Red Gloire de Dijon (carmine), are the best. Another class of Roses, the Hybrid Perpetuals, particularly the variety known as General Jacqueminot, are now grown in immense quantities.

HYBRID PERPETUALS.—To get the Hybrid Perpetual and the Hybrid Tea classes early (say during January) requires special skill and care, but well repays it, as this class of Roses now brings an average of $35 per hundred buds at wholesale, from the 15th of December to January 15th. The method found to be necessary is to grow these Roses on in pots, exactly as recommended for the Evergreen or Tea Roses, except that, as they have a tendency to grow tall, the centre should be pinched out of the leading shoots, so that from five to six shoots run up, and thus not only make the plant bushy, but, what is of more importance, these slimmer shoots are less pithy and ripen off harder, thus ensuring with more certainty a greater production of buds. The plants, if started from cuttings any time from September to January, which is the season we prefer to root them in, will, if properly grown, by August 1st (or at less than one year old) have filled a seven or eight inch pot with roots. Now is the critical point. The plants must be ripened off and rested if a crop of buds is wanted by January and February; so to do that at a season as early as the 1st of September, the plants must be gradually dried off sufficient to make them drop their leaves, though not to so violently wilt them as to shrivel the shoots. This we find easiest done by laying the plants on their sides so as to prevent them being soaked with the rain, which would start them to grow and prevent the early ripening of the shoots. A rest of two months is necessary, so that the plants begun to be dried off by the 1st of August may be started slowly by the 1st of October, and those begun to be dried off by the 1st of September may be started, also at as low a temperature as possible, by the 1st of November. The kinds most used are Magna Charta, Genl. Jacqueminot, Ulrich Bruner, Anna de Diesbach, Paul Neyron, and others of that class. Immense quantities of Roses of this class are now grown in solid beds. These beds require no special preparation where the soil is naturally good, and the natural drainage perfect, but where this is not the case, the same compost recommended for Tea Roses will answer, only using a greater depth, from nine to twelve inches, over a well-drained bottom. Hybrid Perpetual Roses, planted out in solid beds, cannot be had so early as when grown in pots, as, when thus grown, they cannot well be given the rest necessary for early forcing; as a rule, in this district, they are rarely in market before February, and from then they are brought in, in succession crops, until the Roses from outdoors in June come in. The distance at which they are planted is usually from fifteen to eighteen inches each way. We may here state, that many failures have resulted in the attempt to grow the Hybrid Tea Roses without resting, notably the Duchess of Edinburgh Rose, which was sent out from England some five or six years ago as a "Crimson Tea." The misleading name of "Tea" induced hundreds of florists to attempt its growth under the same conditions as the Safrano or Bon Silene class, and the consequence was in every case almost complete failure. This type evidently partakes more of the Hybrid Perpetual than of the Tea class, and as they are hardy and deciduous, refuse to bloom in midwinter unless given the rest that their nature demands.

MILDEW.—Roses, when grown under glass with proper attention to temperature and moisture, are not usually attacked by Mildew; but as a preventative it is well to paint the hot-water pipes once every two or three weeks with a mixture of sulphur and linseed oil, or sulphur and guano, made of the consistency of whitewash; the guano is merely to make the sulphur stick better to the pipes. The fumes of sulphur, as radiated by the heated pipes, is a never-failing means of destroying the germs of mildew, or any other fungoid growth, and also holds in check, to some extent, the Red Spider insect, often so troublesome to the Rose. (See Mildew.)

ROSE BUG.—For the Rose Bug, so destructive to success in Rose growing under glass, there seems no remedy except the slow and unsatisfactory one of catching and killing the insect so soon as it is seen on the leaves. It is not easily observed, as it gets under the leaves and close to the shoots of the plants. Its presence is known by the bitten leaves showing where it is feeding; but even with the greatest diligence, enough will usually escape to deposit their eggs in the soil, which, when hatched out to the grub or pupa state, rapidly begin the work of destruction by feeding on the roots. In this stage all attempts to destroy them have thus far, we believe, failed. The only safety when the Rose Bug is known to be present in sufficient numbers to injure, is to throw out the plants and start with young ones. We have for two years past adopted this plan exclusively, growing the plants only one year old from cuttings rooted during the fall or winter months, and have since then had no trouble whatever from the ravages of this insect. We know, of course, that there are many Rose houses that are even nine to ten years old that never fail to produce abundant crops, particularly such as Maréchal Neil and other climbers; but in such cases it seems to be that the Roses planted either had escaped the visitation of the Rose Bug altogether, or had got so deeply and strongly rooted before being attacked that they could not injure the plants.

SHADING.—There is some difference of opinion as to the propriety of shading Rose houses during the hot summer months. We believe that a slight shading is beneficial, and for that purpose use naphtha mixed with a

little white lead, just enough to give it the appearance of thin milk. This we throw on the outside of the glass with a syringe. It costs only about twenty-five cents for every thousand square feet. This shading is the best we have ever used; it is just enough to take the glare of sunlight off, without much lessening the light; and though it will hold on tenaciously during the summer, is easily rubbed off in fall.

GARDEN CULTURE OF THE ROSE.—But little need be said on this branch of the subject, all that is wanted being a deep, rich soil, in an unshaded position. For the dry climate of the United States a class of Roses should be grown very different from those grown in England. There the "Remontants" or "Hybrid Perpetuals," in their humid atmosphere, with few exceptions, flower nearly as freely as the "Monthly" Roses do here; but with us experience has shown that, after the first bloom in June, no full crop of flowers is again obtained, unless with the comparatively new class known as the Hybrid Teas, of which "La France, Dinsmore, and Duchess of Edinburgh" are types; so that, when a continued bloom of Roses is desired during the entire summer and fall months, the class known as monthly (embracing Tea, Bourbon, Bengal, and Noisette) are the best. True, these varieties are not usually hardy, unless in that portion of the country where the thermometer never gets 20° below the freezing point; but they can be saved through the winter in almost any section if pegged down and covered up with five or six inches of leaves or rough litter. This covering, however, should not be done until quite hard frost comes; in New York about the first week in December. If done sooner, there is danger, if the season is mild (as it usually is here until December 1st), that the shoots may be smothered and decay by a too early covering. This same rule we adopt in covering Grape Vines, Clematis, Raspberries, Strawberries, or, in fact, any other plant or shrub that we believe to be benefited by winter protection, as we have never yet seen injury done to half-hardy plants by frost previous to that date. In this matter of covering, the amateur in gardening often errs, first from his anxiety to protect his plants before there is danger in the fall; and next, in his enthusiasm in spring, he is deceived by some warm day in March to uncover what is not safe until April.

Rosaceæ. A large natural order of herbs or shrubs, very rarely trees, chiefly abundant in temperate regions, extending into the Arctic Zone, as well as ascending to the highest elevations, and more sparingly dispersed within the tropics. Bentham and Hooker, in the "Genera Plantarum," have divided up this extensive and important order into ten tribes, several of which are regarded by some other writers as distinct orders. Many beautiful flowers are included in *Rosaceæ*, the Rose, of course, taking the lead. The principal fruits furnished are the Almond, Apricot, Apple, Blackberry, Cherry, Peach, Pear, Plum, Quince, Raspberry and Strawberry. Rose water is obtained by distillation from the petals of *R. centifolia, Damascena, moschata*, etc., as is also the Attar of Roses by maceration in oil of Sesamum. The bark of *Moquila utilis*, the

Pottery-tree of the Amazon, contains such an amount of silica that, when powdered and mixed with clay, it is employed in making pottery by the natives of Para. The order contains about seventy genera, of which *Cratægus, Prunus, Potentilla, Rosa, Rubus*, and *Spiræa* are good examples, and one thousand or more species.

Rosary Plant. See *Abrus precatorius.*

Rosary Plant, Mexican. *Rhyncosia precatoria.*

Rose. The genus *Rosa*; the name is also applied to other flowers, as Rose Geranium, Christmas Rose, etc.

Alpine. *Rhododendron ferrugineum, R. hirsutum*, etc.
Ash-leaved. *Rosa fraxinifolia.*
Australian, Native. *Boronia serrulata.*
Austrian Brier. *Rosa lutea*, var. *punicea.*
Ayrshire. *Rosa arvensis*, var. *scandens.*
Bengal. *Rosa Bengalensis.*
Boursalt. *Rosa Boursalti.*
Bramble. *Rosa polyantha.*
Bramble-leaved. *Rosa rubifolia.*
Bridal. *Rubus rosæfolius*, var. *coronarius.*
Cabbage. *Rosa centifolia.*
Cherokee. *Rosa lævigata.*
China, or Monthly. *Rosa indica.*
Christmas. *Helleborus niger.*
Cinnamon. *Rosa cinnamomea.*
Damask. *Rosa Damascena.*
Evergreen. *Rosa sempervirens.*
Fairy. *Rosa Lawrenceana.*
French. *Rosa Gallica.*
Green-flowered. *Rosa viridiflora.*
Guelder. *Viburnum Opulus.*
Harrison. An American seedling from *Rosa lutea.*
Holly. The genus *Helianthemum.*
Hundred-leaved. *Rosa centifolia.*
Jamaica. The genus *Meriania.* Also applied to *Blakea trinervis.*
Japanese. *Rosa Yvara*, and the genus *Camellia.*
"Juno's." A name given to *Lilium candidum.*
Lady Banks's. *Rosa Banksiæ.*
Lenten. The species of Helleborus which bloom in Lent.
Macartney. *Rosa bracteata.*
Moss. *Rosa centifolia*, var. *muscosa.*
Mountain of the West Indies. *Antigonon leptopus.*
Prairie. *Rosa setigera.*
Scotch. *Rosa spinosissima.*
Seven Sisters. *Rosa Grevillei.*
South Sea of Jamaica. *Nerium Oleander.*
Sun. The genus *Helianthemum.*
Sweet Brier. *Rosa rubiginosa.*
Tea, or Tea-scented. A variety of *Rosa Indica.*
"Vinegar," of Germany. *Pæonia officinalis.*
West Indian Mountain. *Brownea Rosa.*
Wind. *Papaver Rhæas* and *Rœmeria hybrida.*
Yellow Persian. Probably a seedling from *R. lutea*, introduced from Persia by H. Willock, in 1830.
York and Lancaster. *Rosa versicolor*, a variety of *R. Damascena.*

Rose Acacia. See *Robinia hispida.*

Rose Apple. See *Eugenia Jambos.*

Rose Bay. See *Rhododendron* and *Nerium.*

Rose Campion. See *Lychnis coronaria.*

Rose Elder. See *Viburnum Opulus.*

Rose Geranium. See *Pelargonium.*

Rose Mallow. *Hibiscus coccineus.*

Rosemary. See *Rosmarinus.*

Rose of Heaven. *Lychnis cœli-rosea.*

Rose of Jericho. See *Anastatica.*

Rose of Sharon. *Hibiscus Syraicus.*

Rose Root. *Sedum Rhodiola.*

Rosewood. A valuable South American timber, produced from several species of *Dalbergia.* The finest quality is from Rio Janeiro, the product of *D. nigra,* which see.

Rosin Plant, or **Rosin Weed.** See *Silphium.*

Rosmari'nus. Rosemary. From *ros,* dew, and *marinus,* of the sea; on account of its maritime habitat. Nat. Ord. *Labiatæ.*

The *Rosemary* is a half-hardy, low-growing evergreen, a native of the south of Europe. It has long been cultivated and valued for the essential oil it yields. The whole plant is aromatic, but the flowers, which are pale blue, are chiefly used in distillation for the oil, which is the principal ingredient of Hungary Water and Eau de Cologne. There are several varieties under cultivation in the gardens, *R. officinalis* being the more common species. Propagated by cuttings.

Rostellum. A narrow extension of the upper edge of the stigma of certain Orchids.

Rostrate. Terminating gradually in a long, straight, hard point, like the pod of a Radish.

Rosulate. Collected in a rosette.

Rotate. Resembling a wheel.

Rotation of Crops. All observing cultivators soon discover, that no matter how fertile a soil may be, the same kind of crop cannot be grown so well on it successively as if it were alternated with a crop of an entirely different character. No satisfactory reason can be assigned for this that we know of, unless in the familiar case of the Cabbage crop. We find that if Cabbages on most soils are grown two years in succession, the crop will be affected by the disease known as "Club Root" (which see); but in this particular instance we get at a tangible cause. A great many theories have been assigned why the same crops deteriorate by being grown successively on the same soil, but they have been far from satisfactory, and in no case that we know of, unless in the case of the Cabbage, or Brassica tribe, have they led to any beneficial practical results. The following general rules have been laid down as a guide:

First. Plants of the same natural order should not be planted to succeed each other. *Second.* Crops which for a number of years occupy the ground, such as Strawberries, Rhubarb, or Asparagus, should be succeeded by annual crops, such as Cabbages, Lettuce, or Radishes. *Third.* Crops grown for their heads, such as Cabbage, Cauliflower, or Lettuce, should be succeeded by plants grown for their roots, such as Parsnips, Carrots, or Beets. It is not always practicable to vary crops according to rules, nor should such rules be taken as arbitrary, but only as a guide. When vegetables or fruits are grown for market, the necessities of the cultivator compel usually double crops of the land each season, and that, with heavy manuring and deep cultivation, seems to do away, to a considerable extent, with any need for systematic rotation, which would often be found to be impracticable. As has been previously said, the crops of all others that we find most benefited by change are the Cabbage tribe, together with the allied families of Turnip, Radish, etc.; while, on the other hand, Onions never seem to be injured by successive plantings on the same soil. When space is limited, or when it is not convenient to rotate crops, the next best thing is deep culture, by trenching or sub-soiling (which see). The same method holds good for farm as well as for garden crops. It is not advisable to follow such crops as wheat or corn year after year on the same land; wheat particularly being a great feeder, the land would soon become exhausted. Another reason is—and it is true of a great many other crops—that when one of the same kind is continuously sown, there is far more danger of injury by insects or blight, as it seems to be a law of nature that special plants are subject to the ravages of special insects or diseases, and the best way to get relief from their attacks is to change the crop as radically as possible; thus a grain crop might be followed by one of Potatoes, Mangels, Peas, or Beans; this in turn by grass, if used, or by a change from one or other of the foregoing to Celery, Onions, or Cabbages. Carrots, Parsnips, or other members of that order should never follow each other; but if similar crops have of necessity to succeed each other, the ground should be deeply plowed and well manured between the crops.

Rotund. Rounded in outline; usually applied to bodies which are not round themselves, but only at their ends.

Rouge Plant. See *Rivina humilis.*

Roupa'la. Said to be the native name in Guiana. See *Rhopala.*

Roupe'llia. Named in honor of *Charles Roupell,* a distinguished botanist of South Carolina. Nat. Ord. *Apocynaceæ.*

This is the far-famed Cream-fruit tree of Sierra Leone, a remarkable and showy greenhouse climber. In its native home it is a most beautiful and fragrant plant, but under artificial cultivation its pure white flowers are of cream color, and it is in all respects inferior to the flattering accounts given by its discoverer, and not worth the care and attention required to grow it.

Rowan-Tree. A popular name for *Pyrus Aucuparia.*

Roxbu'rghia. Named after *Dr. Roxburgh,* once director of the Botanic Garden, Calcutta. Nat. Ord. *Roxburghiaceæ.*

A genus of evergreen, twining or half shrubby plants, natives of India and tropical Australia, with broad, shining leaves, and peculiar green flowers which are produced singly and in small clusters on short, axillary peduncles; they are large and handsome, but very fetid, and this disagreeable feature prevents their introduction into choice collections of hot-house plants.

Roxburghia'ceæ. A natural order of twining or erect, half-shrubby plants, natives of tropical Australia, India, and the Indian Archipelago. The thick, tuberous roots of some of the species are, after a previous preparation

with lime-water, candied in India. The order contains about eight species and four genera, all tall twiners, with broad leaves.

Royal Bay. *Laurus nobilis.*

Royal Fern. See *Osmunda regalis.*

Royal Palm. See *Oreodoxa regia.*

Roy'dsia. Named in honor of *Sir John Royds*, of Bengal. Nat. Ord. *Capparidaceæ.*

A small genus of shrubby plants, with small yellow, very fragrant flowers, natives of the East Indies and the Philippine Islands. *R. suaveolens*, the only species yet introduced, though forming a rather rambling bush, is worth cultivating for its delicious fragrance. It is readily increased by cuttings of the young wood.

Roye'na. A name given by Linnæus in honor of *Adrian von Royen*, Professor of Botany at Leyden. Nat. Ord. *Ebenaceæ.*

A genus of tropical shrubs or low-growing trees, some of which are cultivated in the green-house for their beautiful white flowers and glossy foliage. The wood of the species is of the nature of ebony, but not of sufficient size to make it valuable.

Rubber Plant. East Indian. The popular name for *Ficus elastica.*

Rubber Tree. African. The popular name for *Landolphia.*

Rubescent. Reddish, turning red.

Ru'bia. Madder. From *ruber*, red; the color of the roots. Nat. Ord. *Rubiaceæ.*

The perennial species, which are not remarkable for their beauty, are quite hardy. There are also some half-hardy shrubs, which are worth cultivating in a green-house for their flowers, which are generally yellow. A red dye is derived from the roots of all the species, but principally from those of *R. tinctorium*, which is cultivated as a field-plant in the south of Europe.

Rubia'ceæ. A large and important natural order, including *Cinchonaceæ* and *Galiaceæ* as sub-orders. The latter represents the order in temperate climes, while the former (*Cinchonaceæ*) constitutes one twenty-seventh of the flowering plants of tropical and sub-tropical regions. Among the valuable products of the order may be mentioned, Coffee, Quinine, Ipecacuanha, White Gambier, etc. Madder, a valuable dye, may also be mentioned. The order comprises about three hundred and forty genera, and nearly four thousand species. *Bouvardia*, *Gardenia*, *Cinchona*, *Rondeletia*, and *Ixora*, are well-known examples.

Rubicund. Blushing; turning rosy-red.

Rubiginose. Brownish rusty-red.

Ru'bus. Bramble, Raspberry, Blackberry. From the Celtic word *rub*, red; in reference to the color of the fruit of some of the species. Nat. Ord. *Rosaceæ.*

The species are mostly shrubs, trailing or erect, with prickly stems, bearing edible fruit. The plants of this family, growing in all situations and almost every kind of soil, vary greatly, and are consequently very perplexing to the botanist; and so little are authors agreed as to which are species and which merely varieties, that while Bentham reckons only five species, Babington enumerates forty-five. It is this tendency to

vary, however, that has given us many of the most esteemed kinds of Blackberries, etc., found in American gardens. The English garden varieties of the Raspberry have all originated from *R. Idæus*, a native of Europe and Mount Ida in Crete, whence its specific name. The fruit of this species is red. Cultivators, however, have obtained varieties with crimson, brown, yellow, and nearly white fruit. The Red Antwerp and the White Antwerp (but which is pale yellow) have been long and favorably known, both in England and the United States; but they do not survive the winter without protection in our Northern States, and for that reason are little grown at the North. There are now a large number of varieties raised from our native species that possess qualities of goodness and hardiness that entitle them to universal cultivation, though they are inferior in quality to the foreign kinds. Brinckle's Orange is an American seedling raised by the late Dr. Brinckle, of Philadelphia. It is, however, of foreign parentage, and consequently tender, but the highest flavored of all Raspberries. The wild Red Raspberry, *R. strigosus*, common in hedges and on the hillsides throughout the Middle and New England States, closely resembles the European species. Its fruit is tender and somewhat watery, but the flavor is fine. Some excellent varieties of this species are under cultivation. The Black Raspberry, commonly known as the Black Cap or Thimbleberry, is *R. occidentalis*, a species that is confined wholly to America. It is most common from Virginia north and westward. This species and its varieties bear a pleasant-tasted fruit in the greatest abundance with very little care. They are the least troublesome of all Raspberries to grow, inasmuch as they increase themselves from the tips or ends of the shoots, and produce no suckers. There are several varieties of the Black Caps that bear reddish-crimson fruit. A number of hybrid Raspberries have been recently introduced, partaking somewhat of the Black Cap characteristics, particularly the peculiarity of rooting from the tips of the green shoots; and among these the most striking is the Caroline, which is propagated from suckers as well as from the tips of the shoots, plainly showing its hybrid character. It has been said by those unacquainted with its origin that it is a hybrid between Brinckle's Orange and the Catawissa; but the originator disclaims any such origin, and the plant itself and its fruit show that the Catawissa was not one of its parents. It was raised in 1877 by S. P. Carpenter, of New Rochelle, Westchester county, N. Y., and is a natural cross between Brinckle's Orange (the seed parent) and the Yellow Cap, a variety of *R. occidentalis*. The plant is thoroughly hardy, a strong grower, and wonderfully productive. The fruit, when ripe, is a fine salmon color, tender, and of excellent quality, though not equal to the Brinckle. Another of S. P. Carpenter's seedlings is the well-known New Rochelle, a seedling of the Catawissa. It is hardy, very productive, and of good quality, being slightly acid. Another Westchester County seedling is the Cuthbert, newly introduced, and which at this time promises to become a leading market variety, being hardy, productive, and of fine quality,

and the fruit firm enough to bear long carriage. The Gregg, another recent introduction of the Black Cap division was raised in Ohio in 1876, is a very fine large fruit, and has already taken its place as the best of its class as a market berry. The Mammoth Cluster, Clarke, Tyler, Marlboro, Rancocas, Hansell, and many others are more or less grown, but need not be specially noted here. The *Blackberry*, of which there are several native species, is now largely grown for market, and is a profitable crop. Until the appearance of the New Rochelle Blackberry (sometimes called Lawton) our markets were supplied with Blackberries from the woods. *R. villosus*, the High Blackberry, is the common Blackberry of the country, being found almost everywhere. It is given to variation, and is the parent of nearly all the varieties now under cultivation. The first of these was the New Rochelle, discovered by Mr. Secor growing in a hedge at New Rochelle, Westchester County, New York. It is an interesting fact, as showing the estimation in which improved Blackberries were held at that time, that Mr. Secor grew the plants in his garden for about nine years without being able to prevail upon his neighbors to accept a plant as a gift, when at last Mr. Lawton, a shrewd lawyer, took hold of it, exhibited the fruit in New York, got up a sensation, and finally made a little fortune out of the sale of the plants. Hundreds of acres of it are in cultivation. It is a large, handsome and excellent fruit, but the plants are at times injured in the winter at the North. Some years later a clergyman of New Jersey discovered another variety of *R. villosus* growing in the edge of the woods on the Kittatinny Mountains, removed it to his garden and increased it largely. This was placed in the hands of E. Williams, of Montclair, N. J., who sent it out, and the public were thus put in possession of the famous Kittatinny which still remains the best fruit of its class. The Wilson is an earlier berry than either of the preceding, but not equal to them in quality. The Snyder is an early kind, immensely productive, and perfectly hardy in all parts of the country. The fruit is smaller than the Kittatinny, but is very sweet and ripe as soon as colored, which is not true of those above named. Many other sorts are in cultivation, for names and descriptions of which see nurserymen's catalogues. *R. Canadensis*, the Running Blackberry, is popularly known as the Dewberry. The fruit is of an excellent quality, and ripens about two weeks earlier than most of the preceding species. A variety called the Lucretia bears large and handsome fruit, and is valuable as coming between the Raspberry and Blackberry. It is also very valuable in the Southern States, where the tall-growing varieties do not succeed. *R. cuneifolius*, or Sand Blackberry, is one of the more common species, growing from two to three feet high, and ripening an abundance of well-flavored fruit in August. This species is common in sandy woods in southern New York and southward. *R. Chamæmorus*, Cloudberry, is a species with large orange-red fruit, found growing on the White Mountains and similar elevations in the Northern and Eastern States. This species, or something very near it, is also abundant in Lapland, where the fruit is held in high esteem. There are several other species, without, however, any special distinctive features. Propagated by root cuttings, tips of the shoots or suckers, according to the kind.

Rudbe'ckia. Cone Flower. Named in honor of Professors *Rudbeck*, father and son, predecessors of Linnæus at Upsal. Nat. Ord. *Compositæ*.

A genus of hardy herbaceous perennials, growing from two to seven feet high, with numerous showy flower-heads of bright yellow, with a black disk in the centre. They are natives of the Western States, and are becoming common in our meadows, having been introduced by the seed being mixed with the various grass seeds coming from the West, principally from Kentucky. This genus acquired an enviable reputation in Europe as an ornamental flowering plant, and the seed was distributed by the Department of Agriculture at Washington, through the members of Congress, to several of the States that had passed stringent laws against the dissemination of "weeds."

Ru'dgea. Commemorative of *M. F. Rudge*, an English botanist. Nat. Ord. *Rubiaceæ*.

A genus of green-house shrubs or low-growing trees, with dense terminal panicles of white flowers, natives of Brazil. *R. macrophylla* is occasionally seen in the green-house. It is also known as *R. leucocephala*.

Rudimentary. In an incomplete condition.

Rudo'lphia. Named after *W. Rudolph*, a Prussian botanist. Nat. Ord. *Leguminosæ*.

A small genus of very beautiful green-house evergreen twiners, from Mexico and the West Indies. The genus is allied to *Erythrina*, and is remarkable for its brilliant scarlet flowers, produced in axillary racemes. Propagated by cuttings or from seeds.

Rue. See *Ruta*.

Rue. Goat's. A common name for *Galega officinalis*.

Rue. Wall. The popular name of *Asplenium Ruta-muraria*.

Rue'llia. In honor of *John Ruelle*, of Soissons, botanist and physican to Francis I. Nat. Ord. *Acanthaceæ*.

Herbaceous green-house plants with pretty tube-shaped blue flowers. Some of the species require a hot-house, and others a green-house; but they should all be grown in light, rich soil. *R. macrantha* is getting quite common as a window plant. Certainly, one more worthy it would be hard to find; its large, trumpet-shaped, rosy flowers are produced for a month or two in succession. They are natives of South America and the East Indies, and are propagated by cuttings. By many botanists, Dipteracanthus is included in this genus.

Rufous. Pale red, mixed with brown.

Ruga. A wrinkle; hence, Rugose, covered with wrinkles.

Rui'zia. Named in honor of *Don H. Ruiz*, author, in conjunction with Pavon, of "Floræ Peruvianæ et Chilensis," Nat. Ord. *Sterculiaceæ*.

A genus of ornamental shrubs, natives of Bourbon. Two species, *R. lobata*, and *R. variabilis*, both with reddish flowers, are in culti-

vation, and are worthy of a place in every good collection. Propagated by cuttings in heat.

Ru'mex. Dock, Sorrel. From *rumo*, to suck; in allusion to the practice among the Romans of sucking the leaves to allay thirst. Nat. Ord. *Polygonaceæ*.

Most of the species are common weeds. The leaves of *R. acetosa* are sometimes used as a pot-herb, or "greens." *R. acetosella* is a small-growing species, well known for its acidity, and popularly called *Sorrel*. It is justly regarded as a nuisance. *R. scutatus*, the Buckler-shaped or French Sorrel, is a hardy perennial, a native of France and Italy. It is considered of great importance in French cookery, and is both agreeable to eat and very wholesome, although but little valued in this country, except at some of the most fashionable tables. It is extensively cultivated on the continent, and in the markets of Paris is nearly as abundant as Peas are in ours. It abounds in oxalic acid, and is regarded as a powerful anti-scorbutic.

Rumfo'rdia. The only species of this genus, *R. floribunda*, is a handsome, opposite-leaved Mexican bush of the *Compositæ* family, differing from *Heliopsis* chiefly in habit. The whole plant is smooth, and the erect stems, furnished with ample, glossy leaves, terminate in a panicle of very numerous bright-yellow flower-heads, each about an inch across, and interspersed with oblong bracts. Propagated by division or by seeds.

Runcinate. Curved in a direction from the apex to the base, as the leaf of the Dandelion.

Runner. A prostrate, slender stem, rooting at its extremity or elsewhere, as in the Strawberry.

Running Blackberry. See *Rubus*.

Running Cedar. *Lycopodium dendroideum*.

Rupestris. Rupicola. Growing on rocks or in rocky places.

Ru'scus. Formerly *Bruscus*. Butcher's Broom. From *bruscus*, derived from the Celtic *beus*, box, and *kelen*, holly; Box Holly or Butcher's Broom. Nat. Ord. *Liliaceæ*.

Very curious evergreen shrubs, most of which bear their flowers and fruit on their leaf-like branches. All the species prefer shady situations under the drip of trees, where but few other plants will grow; and they are all readily increased by suckers from their roots, which they throw up in abundance. They are natives of Europe and the whole Mediterranean region from Madeira to the Caucasus. *R. racemosus* is sometimes called the Alexandrian Laurel.

Rush. See *Juncus*.

Rush. Flowering. See *Butomus*.

Rush-Lily. The genus *Sisyrinchium*.

Russe'lia. Named in honor of *Dr. Alexander Russel*, author of a Natural History of Aleppo. Nat. Ord. *Scrophulariaceæ*.

A genus of small shrubs and herbaceous plants from Mexico and the Antilles. *R. juncea*, a very pretty species, with bright scarlet flowers, produced in axillary corymbs, is a plant of slender habit, and well adapted for basket work. It was introduced from Mexico in 1833, and is propagated by cuttings.

Russian Mats. An article of commerce manufactured from the inner bark of the Lime tree (*Tilia*), formerly much used for protecting frames, tying purposes, etc.

Rust. This term is used for a destructive form of disease affecting many widely different kinds of plants. It is known by the dry, shriveled, or curly appearance of the foliage, the leaves being less or more discolored with blackish blotches or spots. It is not always easy to determine the cause, but we think it is safe to say that in many plants it is owing to a weakened condition of the plant that invites the attacks of parasites, causing the "rust." This we have proved to be the case so often in our practice that we now no longer doubt on the subject.

We find, for example, if we leave such plants as Heliotropes, Verbenas, Lantanas, Pelargoniums, or other plants subject to the disease known as "black rust," so that they become enfeebled for want of pot room, they are almost certain to be affected. A few years ago we tried an experiment on one hundred each of Heliotrope and Verbena plants (that were in fine, healthy condition, growing in two-inch pots), of shifting one-half of each lot into three-inch pots, the other half being allowed to remain unshifted. The shifted plants grew vigorously, and in six weeks were twice the size of the others, and in fine, vigorous health; while those unshifted, becoming impoverished for want of new soil, were stunted, and nearly all became affected by "black rust."

The examination of the diseased leaves by a powerful microscope revealed numbers of crab-like mites feeding on the leaves, while on healthy leaves of the same plant not a parasite could be found. The inference then is, that the weakened condition of the plant made it a congenial soil for the deposit of the germ of this parasitical insect. Another kind of "rust," evidently distinct from the preceding, is now one of the most serious obstacles in the forcing of Lettuce under glass, whole crops being utterly destroyed by it. We are inclined to believe that the Lettuce rust is the work of a vegetable parasite, as a microscopic examination of the diseased leaves shows a fungoid structure very similar to Rose mildew. The only remedy we can advise in this case is to work with young plants on fresh soil as far as practicable. The usual method of obtaining Lettuce plants for forcing is to use plants sown or planted in cold frames in fall for all the plantings during the entire winter; but we have found that such plants are more liable to the disease than those sown later; and now the most successful growers of Lettuce for winter use only the cold-frame (fall-sown plants) for their first crop, which is usually ready at Christmas, while for the succession crops, new sowings are made about six weeks before the plants are needed, it being found that these fresh young plants are less liable to the rust than the others.

Rustic Work. This term is applied to all ornaments or erections made of gnarled and twisted branches or roots, undressed timber, or other similar materials, as nearly as possible in their natural state. Its construction requires natural aptitude and good taste, and

the best examples are those that show the least the mark of the workman's tools. Its disposition also is a matter of good taste, few suitable positions for it being found on the lawn or in the highly-kept flower garden near the house, but for the most part in nooks and corners of shrubberies, etc. Rustic fences, bridges and gates are often used in situations cut off from the more cultivated grounds, or as an introduction to the borders of woods or the rock-garden. A few rustic arches at intervals, covered with Honeysuckles, Roses, Clematis, Jasmine, etc., forming a vista at the end of which is a rustic summer-house, its porch and veranda covered with Clematis and other climbers, are most fitting accompaniments to the rock-garden, and add greatly to its appearance and attractiveness.

In places where there is a large expanse of lawn, with glades of turf and spreading trees and masses of shrubbery, rustic beds, formed like baskets, vases, or pyramids, are pretty objects if placed with judgment, and are very effective if associated with Ampelopsis, Ivy or Ferns. Rustic chairs are, as a rule, more picturesque than useful, and should be used only when apparently needed.

Ru'ta. Rue. From the Greek *Rute*, from *ruo*, to flow; probably some reputed medicinal qualities of the plant. Nat. Ord. *Rutaceæ*.

A genus of about forty species of hardy or half-hardy strong-smelling perennial herbs or shrubs, natives of western and central Asia and southern Europe. Few of the species are of any horticultural value. *R. graveolens* is a well-known glaucous-leaved plant, having a very unpleasant smell and a bitter taste. The leaves are nearly blue, and from their peculiar color sometimes produce a good effect in a shrubbery. The flowers are yellowish.

Ruta Baga. The Swedish Turnip. *Brassica campestris*, var. *Ruta Baga*. See Turnip.

Ruta'ceæ. A large order of trees, shrubs, or rarely herbs, always more or less marked with glandular dots, especially on the foliage, and often strongly scented. In its geographical range, the order extends over the tropical, sub-tropical and temperate regions of the globe, it is, however, scarce in tropical Africa and disappears entirely in cold climates and at great elevations. *Citrus* (sub-order *Aurantieæ*) is the most celebrated genus on account of its fruits, Orange, Lemon, Lime, etc., from the flowers of which a volatile oil is obtained, which is the basis of Eau de Cologne. The berries of some other genera from China and Japan are edible. *Ruta graveolens* is grown in most gardens and is remarkable for its strong smell and acrid taste. The order consists of about eighty genera, including many well-known flowering plants, such as *Correa*, *Crowea*, *Citrus*, *Diosma*, *Choysia*, etc., and over six hundred species.

Rutilans. Deep red, with a metallic lustre.

Ruy'schia. Named in honor of Fred. Ruysch, once Professor of Botany at Amsterdam. Nat. Ord. *Marcgraaviaceæ*.

A genus of about eight species of tropical American epiphytal or climbing shrubs, which have thick, quite entire leaves, and terminal, very often long, racemes of flowers. *R. Clusiæfolia*, the only introduced species, is an interesting and desirable plant-stove, shrubby plant, with alternate, thick, shining leaves and long, many-flowered, terminal racemes, of purple flowers with scarlet bracts, dotted with red. It was introduced from the Caribbee Islands in 1823, and is increased by cuttings of the ripened wood.

Rya'nia. Named after John Ryan, M. D., a correspondent of Vahl. Nat. Ord. *Bixinaceæ*.

A genus of stellately pubescent trees, natives of tropical America. *R. speciosa*, the only introduced species, forms a beautiful tree with large, showy, cream-colored flowers. It is increased by cuttings of the ripened wood, and was introduced from the West Indies in 1823.

Rye. See *Secale*.

Rye Grass. The common name for *Lolium perenne*.

Rye, Wild. The genus *Elymus*.

Rysso'pterys. From *ryssos*, wrinkled, and *pteris*, a wing; alluding to the form of the wing of the fruit. Nat. Ord. *Malpighiaceæ*.

A genus of slender, twining, stove or greenhouse plants, natives of the Indian Archipelago and Australia. *P. microstema*, the only species yet introduced, is an interesting climber, introduced from Java in 1820.

S.

Sa'bal. Derivation of name unknown; supposed to be the South American name of one of the species. Nat. Ord. *Palmaceæ*.

This interesting genus of Palms has three species common to the marshy districts of the southern coast, from North Carolina to Florida, which are popularly known as the Palmetto, the emblem on the seal of South Carolina. The most conspicuous of the species is *S. Palmetto*, indigenous to North Carolina and southward. It attains a height of fifty feet, with a diameter of twelve to fifteen inches. The timber is said to be valuable in shipbuilding, being indestructible in salt water, and not liable to the attack of the ship-worm. The leaves are from five to six feet long and are used in the manufacture of hats (Palm leaf), baskets and mats, and various other purposes of domestic economy. This species is also called Cabbage Palm, the young, unexpanded leaves constituting one of the most delicious vegetables of the table. The Saw Palmetto is *S. serrulata* (syn. *Serenoa serrulata*), and the Dwarf Palmetto is *S. Adansonii*.

The Blue Palmetto belongs to the genus Chamærops, *C. hystrix*, also common on the southern coast. *S. Blackburniana*, the Fan or Thatch Palm, a native of the Bermudas, is admirably suited for a window plant when small, or for lawn decoration in summer.

Sabba'tia. Named in honor of *L. Sabbati*, a celebrated Italian botanist. Nat. Ord. *Gentianaceæ.*

A genus of native hardy annuals and biennials, some of which, though rather coarse-growing, are quite ornamental plants, suitable for the border. The flowers are purple, rose, white, red and yellow. *S. campestris*, a native of Texas, with rose and yellow flowers, is a desirable border plant. *S. angularis* is held in high esteem as a tonic medicine. *S. chloroides*, with deep rose-colored flowers borne on loose panicles, found by the borders of brakish ponds and on salt meadows along the coast from Massachusetts to Virginia southward, is one of our handsomest native plants. The only means of propagation is by seed, which should be sown as soon as ripe and wintered over in a cold frame like Pansies.

Sabice'a. *Sabisabi* is the name of *S. aspera* in Guiana. Nat. Ord. *Rubiaceæ.*

A genus of plant-stove, twining shrubs, often tomentose; natives of tropical America, Africa and Madagascar. Only two species, *S. aspera* and *S hirta*, have been introduced, and are seldom found outside of botanical collections.

Sabi'nea. Named in honor of Joseph Sabine, once Secretary of the Horticultural Society of London.

A genus of *Leguminosæ*, embracing three West Indian shrubs, having unequally pinnate leaves, somewhat like those of *Robinia*, and pink pea flowers as large as those of that plant, disposed in axillary fascicles of two to four flowers. Propagated by cuttings in heat.

Saccate, Sacciform. Sac-shaped; in the form of a bag.

Saccha'rum. Sugar Cane. From *soukar*, its Arabic name. Nat. Ord. *Graminaceæ.*

A genus of strong-growing, reed-like grasses, indigenous to South America and the East and West Indies. The most important species is *Saccharum officinarum*, a native of India, the Sugar Cane of commerce. We have but little knowledge of the Sugar Cane previous to the thirteenth century. Humboldt tells us it was cultivated in China in the remotest times, and that, under the name of honey, it was known to the Greeks and Romans, though they never cultivated it as an article of luxury. It is supposed that Theophrastus alludes to it when he says that, besides being produced from bees, honey, or sweet juice, is also the product of canes. The Sugar Cane, however, seems to have been early cultivated in China and India, and from the latter region it was introduced into Europe. Before the discovery of the West Indies in 1492, or of the East Indies in 1497, sugar was manufactured from the Sugar Cane in considerable quantities in the islands of Sicily, Crete, Rhodes and Cyprus. Soon after the discoveries of Columbus, plantations were established in the West Indies and Brazil, and in the Southern States im-

mediately after their settlement. The plant was first cultivated on the banks of the Mississippi about the year 1751, when some Jesuits brought it from St. Domingo. These Jesuits settled just above the present site of New Orleans. In 1758 the first sugar-mill was built near that locality by M. Dubreuil on his sugar plantation. That was the commencement of one of the largest and most profitable of American industries. The cane is always propagated from cuttings. Bentham, in his "Flora of Hong Kong," page 420, states "that we have no authentic record of any really wild station for the common Sugar Cane. Further than this, in common with many plants that have been for a long time under cultivation and reproduced solely by means of buds and suckers, the Sugar Cane so rarely produces mature fruits, that no one, so far as we are aware, has seen them. Certainly in the rich Herbarium at Kew there are no seed-bearing specimens. In botanical works the subject is often referred to, but apparently only to re-state the fact that botanists, like McFadyen in the West Indies and Roxburgh in India, have never seen the seeds of the Sugar Cane."—Hooker's Botanical Miscellany, 1830, vol. i., page 95. Professor H. Harrison, Government Inspector, Barbadoes, however, under date September 17th, 1888, states that seedling Sugar Canes had been found at Barbadoes, and that plants were in the course of being raised at the botanical station there. He, feeling satisfied that these were self-sown, had them transplanted and carefully cultivated, and amongst them appear to be at least five or six different sorts. He further states: "I have never heard of the Bourbon Cane producing fertile arrows; in all the alleged cases of fertility, the arrows were either those of the purple or white transparent varieties, which are prone to variation. I shall again attempt this year to obtain the same result. Of course, if we can establish the fact of the Cane occasionally and under favorable conditions producing fertile seed, it will open up an important field of investigation." From cuttings the plants come to maturity in about two months, and a plantation well cared for and properly manured will last a number of years. The successful planter makes plantings nearly every year for a constant succession. For planting, the ground is prepared and marked out the same as for corn, with rows about four feet apart, and the plants two feet apart in the rows. In cultivation, the plow and cultivator are almost wholly used in place of the hoe, as formerly was the custom. *S. Ægypticum* is a vigorous perennial grass, forming ample tufts of reed-like, downy stems, six to ten feet high, and clothed with very graceful foliage. It is well adapted for ornamenting the margins of pieces of water, the slopes and other parts of pleasure-grounds, etc. It is a native of North Africa, requiring protection in winter, and is easily and quickly multiplied by division in spring. *S. Maddeni* is a quick-growing, hardy perennial, attaining a height of about five feet. It has handsome foliage, and is well worthy of culture for associating with other large-growing grasses.

Saccola'bium. From *saccus*, a bag, and *labium*,

RUELLIA FORMOSA.

SABBATIA CAMPESTRIS.

SALISBURIA ADIANTIFOLIA.

SABAL BLACKBURNIANA.

RUSSELIA JUNCEA.

SALVIA CARDUACEA.

SANVITALIA PROCUMBENS FL. PL.

SCHIZOSTYLIS COCCINEA.

SALVIA SPLENDENS.

SALPIGLOSSIS.

SANSIEVERIA.

SALVIA OFFICINALIS (SAGE).

SATUREIA (SAVORY).

a lip; in allusion to the bagged labellum of all the species. Nat. Ord. *Orchidaceæ*.

An extensive genus of epiphytal Orchids, chiefly natives of India. The "Orchid-Grower's Manual" says: "This genus contains some of the finest Orchids in cultivation. They are very compact in their growth, and are furnished with long, thick and pendant evergreen foliage. From the axils of the leaves their long, graceful racemes of flowers, which measure from one to two feet in length, are produced. Their habit of growth is the same as that of the *Aërides*, and they require the same treatment, except that they are grown in baskets suspended near the roof, so they may receive all the light possible, and not too much shade, only enough to preserve their foliage from being injured. The various species of this genus mostly inhabit the hottest parts of India, and are found growing on the branches of trees. They are propagated in the same manner as the *Aërides*."

Sacred Bean of the Egyptians. In books the plant called by this name is generally said to be *Nelumbium speciosum*, but recent researches have proved it to be *Nymphæa Lotus*.—Nicholson's Dict.

Sacred Bean, or Sacred Lotus. See *Nelumbium*.

Sack-Tree. *Antiaris* (*Lepurandra*) *saccidora*, the bark of which is formed into natural sacks, in India, and used for carrying rice.

Saddle-Tree. A common name for *Liriodendron Tulipiferum*.

Sadle'ria. Named after *Joseph Sadler*, Professor of Botany at Pesth. Nat. Ord. *Filices*.

A genus of arborescent tree-ferns, comprising three or four reputed species, all from the Sandwich Islands. *S. Cyatheoides*, the only introduced species, is a beautiful plant, combining the habit of a small *Cyathea*, with the fructification of a *Blechnum*.

Sad-Tree. See *Nyctanthes arbor-tristis*.

Safflower. See *Carthamnus tinctorius*.

Saffron. A commercial name for the dried stigmas of *Crocus sativus*, an autumn flowering species with purplish-blue flowers appearing in October, the leaves of which continue to grow all winter.

Saffron-colored. Deep orange colored, with a dash of brown.

Saffron. Meadow. *Colchicum autumnale*.

Saffron Thistle. The common name of *Carthamnus tinctorius*.

Sage. See *Salvia;* also specially applied to the culinary herb, *Salvia officinalis*.

Sage-Bush or Sage Brush. A name applied to various species of *Artemisia*, which see.

Sage. Jerusalem. See *Phlomis fruticosa*.

Sage-Rose. An old name for the genus *Cistus*.

Sage'nia. From *sagu*, the Malay name of some Palms, which this genus resembles in miniature. Nat. Ord. *Polypodiaceæ*.

A genus of coarse-growing, Aspidium-like ferns, inhabiting the tropical parts of both worlds. *S. macrophylla*, a native of the West Indies, is frequently grown in the green-house, and, like several of the cultivated species, was formerly known as *Aspidium*. Syn. *Nephrodium*.

Sagi'na. Pearl-weed or Pearl-wort. A genus of *Caryophyllaceæ*, consisting of small, tufted annual or perennial plants of but little interest, with the exception of *S. pilifera*, which is hardy and evergreen, suitable in some situations as a substitute for grass. *S. pilifera aurea*, a variety with golden-yellow foliage, is a good dwarf plant for carpet-bedding. This species is commonly grown under the name of *Spergula pilifera*.

Sagitta'ria. Arrow-head. From *sagitta*, an arrow; the leaves of some species resemble an arrow-head. Nat. Ord. *Alismaceæ*.

A genus of handsome green-house and hardy aquatics with white flowers. Several of the species are common to our marshes from Maine to Florida. They make beautiful plants for the aquarium or any situation where they can have an abundant supply of water. Some of the more tender varieties have been introduced into the green-house, though rarely.

Sagittate. Shaped like an arrow-head.

Sago. A granulated form of starch, obtained from the pith of the trunk of *Sagus lævis* and *Sagus Rumphii* in Singapore, the former furnishing most of the Sago sent to Europe. In India it is obtained from *Phœnix farinifera*, in Java from *Corypha Gebanga*, and it is also produced by *Caryota urens*, and several other *Palms* and *Cycads*.

Sago. Portland. A kind of arrow-root, manufactured from the corms of *Arum maculatum* in the Island of Portland, Britain.

Sago Palm. See *Cycas revoluta*.

Sagræ'a. Named in honor of *Raymond de la Sagra*, once director of the botanical gardens at Havana. Nat. Ord. *Melastomaceæ*.

A genus of over twenty-five species of stove-house shrubs, natives of equatorial America. Three or four species are in cultivation, but are seldom found outside of botanical collections.

Sague'rus. Derivation of name not given. Nat. Ord. *Palmaceæ*.

A small genus of Palms, almost entirely confined to the Eastern Archipelago. Of the five known species, three form handsome trees thirty or forty feet high; the other two seldom exceed ten feet. *S. saccharifer*, the Areng, is a very common palm in the Indian Islands, and on account of the variety of its products is of great value to the natives. The black, horse-hair-like fibre surrounding its leaf-stalks, called Gomuti by the Malays, is converted into cordage, and is also used in the manufacture of brushes and various ornaments. The tree also yields an inferior article of sago, also large quantities of toddy, or palm wine, and sugar. When young it is a very handsome green-house plant. Syn. *Arenga*.

Sa'gus. From *Sagu*, the Malay name of various Palms. Nat. Ord. *Palmaceæ*.

A genus of very beautiful, tall-growing Palms, natives of India and Madagascar. The species furnish a large portion of the Sago of commerce, which is prepared from the soft inner portion of the trunk. It is obtained by cutting the trunk into pieces about two feet long, the pieces being then split in half and the soft substance scooped out and pounded in water till the starchy matter separates,

when it is drained off with the water, allowed to settle, and afterward purified by washing. These trees produce their flower-spikes when about fifteen years old, and the fruit is nearly three years in ripening, after which they die. In order to procure the greatest quantity of Sago, the trees must be cut down immediately after the flower-spike makes its appearance. Introduced in 1800. Syn. *Metroxylon.*

Sailor Plant. A name applied to *Saxifraga sarmentosa.*

Sainfoin or **Saintfoin.** See *Onobrychis sativa.*

St. Agnes' Flower. *Erinosma* or *Leucojum.*

St. Andrew's Cross. *Ascyrum Crux-Andrea.*

St. Catherine's Flower. *Nigella Damascena.*

St. Christopher's Herb. *Osmunda regalis* and *Actæa spicata.*

St. James's Wort. *Senecio Jacobæa.*

St. John's Bread. See *Ceratonia Siliqua.*

St. John's Wort. See *Hypericum.*

St. Joseph's Lily. *Lilium candidum.*

St. Martin's Flower. *Alstrœmeria pulchra.*

St. Patrick's Cabbage. *Saxifraga umbrosa.*

St. Peter's Wort. A name applied to *Ascyrum Stans* and the genus *Symphoricarpus.*

St. Thomas' Tree. See *Bauhinia tomentosa.*

Sa'la'cia. From *Salacia,* in heathen mythology, the wife of Neptune. Nat. Ord. *Celastraceæ.*

A genus of about sixty species of stove-house plants, natives principally of India and the Eastern Archipelago. *S. dulcis* bears a globular fruit about the size of a crab-apple, yellowish in color, sweet and juicy, and (according to Dr. Spruce) much eaten by the Indians on the Rio Negro, who call it Waiatuma. *S. pyriformis* also affords a sweet-tasted fruit about the size of a bergamot Pear. The majority of the species are of no great beauty, and are only worth growing in botanical collections.

Salica'ceæ. A natural order of trees or shrubs with alternate leaves; natives chiefly of the northern temperate and the frigid regions, a few being found in South America and South Africa. The only two genera, *Salix* and *Populus,* contribute some ornamental subjects to our gardens. The number of species in the order is estimated by various authors at between two and three hundred.

Salico'rnia. Glasswort. From *sal,* salt, and *cornu,* a horn; alluding to the economic products, and the horn-like branches of the plants. Nat. Ord. *Chenopodiaceæ.*

A genus of succulent plants common to salt marshes in various parts of the globe. They grow from six to ten inches high, and are much branched and jointed. The various species of this genus grow abundantly on the coasts of northern Africa and southern Europe, and yield large quantities of soda which is employed in making both soap and glass. From its use in the latter the genus derives its common English name, *Glasswort.* The genus is represented in this country by several species, the more common being *S. herbacea,* which is considerably used when young for pickling. On the New England coast it is known by the name *Samphire.*

Salisbu'ria. Maiden-hair Tree. In honor of *Richard A. Salisbury,* a distinguished English botanist. Nat. Ord. *Coniferæ.*

This very remarkable tree was formerly called *Ginkgo biloba,* Ginkgo being its name in Japan. The only species that has been described, and is to be found in collections of ornamental trees, is *S. adiantifolia,* the leaves resembling in form those of the Maiden-hair Fern, the botanical name of which is *Adiantum.* This is one of the most beautiful and peculiar of all hardy exotic trees, and one so entirely different in habit and foliage from all others belonging to this order, that, were it not for the flowers and fruit, it would have been difficult to find its proper position in the vegetable kingdom. Without regard to its botanical position, it is beyond question one of the most beautiful trees under cultivation. It attains a height of eighty feet, and has a straight trunk with a pyramidal head. This tree is a native of China and Japan, and was introduced into England in 1754. It is not yet as common in this country as it should be, on account of its price and scarcity, but is now being more largely propagated and planted. There is a fine specimen on Mr. Manice's place at Queens, L. I., fully fifty feet high, with a full, symmetrical head. There is also a noble specimen on the old Downing place at Newburgh, supposed to be the largest in the States. It is propagated in this country by layers, or by imported seeds. The fruit is common in Japan, and is highly esteemed for its astringent properties and for the reputation it has of promoting digestion.

From an interesting notice of this remarkable tree in the "Philadelphia Ledger," August 29, 1889, remarking on its fruiting for the first time in that city, in the grounds of Mr. Charles J. Wister, Germantown, and communicated to us by Mr. A. Garman, of Philadelphia, we make the following extracts:

"The tree itself has a very remarkable history. It is asserted by eminent horticulturists that it has been found wild nowhere on the earth, but is cultivated largely both in China and Japan, where it is usually found near the temples and similar religious structures.

"The first specimen received in this country was presented by William Hamilton, the former owner of the beautiful grounds—in which the celebrated explorer, Pursh, was gardener—which is now known as Woodlands Cemetery. This particular tree is still regarded as one of Philadelphia's arboreal treasures, and tree lovers from distant parts of the globe, when in this city, journey to the cemetery expressly to see this magnificent specimen.

"When the original tree that was imported from Japan flowered it was found to have male flowers only, and consequently all trees propagated by cuttings were male also. The tree in Woodlands is a male tree. It has only been comparatively a few years since seeds have been introduced from China or Japan, and among these young seedlings, plants with female flowers were found. This tree of Mr. Wister's happens to be female, and now that it has come of age it produces fruit. Numerous seedling trees have been distributed over different parts of the United States, and it is expected that others will reach the fruiting stage before many years. There is a magnificent avenue of Ginkgo trees on

the grounds of the Agricultural Department at Washington, the trees having been sent there from Pennsylvania nurseries. It is not known, however, that even the National Government has been favored with fruit ahead of Mr. Charles J. Wister.

"The fruit itself is about the size of a large cherry, and is of a greenish-yellow color when ripe. Like the cherry, it has a fleshy pulp with a single stone or seed in the interior. To most persons the odor of the fruit is very disagreeable, but the fruit plays a very important part in Chinese gastronomic art. The grand dinners of the Chinese usually last all day, and every help to digestion is needed in order that the guests may experience the fullest enjoyment. The fruit of the Ginkgo is the chief element in promoting this desirable result. They are first slightly roasted, and then placed in small plates by the side of the guests, who every now and then take one between courses, as an American or an Englishman would an olive. Mr. Wister states that the odor of the fruit of his tree is very disagreeable, and those who have handled the fruit can scarcely credit its use as described by the Celestials.

"The palæontologists and evolutionists are also much interested in the Ginkgo. Although, as already stated, no wild localities are known where the trees grow, it has been discovered by its fossil remains to have been once widely scattered over the face of the globe. It is probable that it is only through its having commended itself by its beauty and other good qualities to the Chinese and Japanese gardeners, that it has been able to survive those geological cataclysms under which the old race has been cleared away from the surface of the earth. It is classed with the coniferous trees, notwithstanding its fern-like foliage, its closest relation being the yew family; but as there is nothing very closely resembling it, the palæontologists believe that an immense number of what have come to be called missing links must have been wholly swept away."

Sa'lix. Willow. From the celtic, *sal*, near, and *lis*, water; in allusion to its place of growth. Nat. Ord. *Salicaçeæ.*

The Willow is a large and varied genus of deciduous trees and low-growing shrubs. Some are timber trees, that attain a height of eighty feet, with a diameter of trunk from four to six feet. One of the species, *S. herbacea*, creeps so near the ground that it forms on the Swiss mountains a kind of turf, not rising more than an inch in height. The genus consists of upwards of two hundred species, but few of which claim special notice. The Weeping Willow is *S. Babylonica*, a native of the Levant. The Osier or Basket Willow is *S. viminalis*, common throughout Europe. *S. laurifolia* is a low-growing tree or shrub with broad glossy foliage, and is a fine subject for the lawn. All the species grow rapidly in moist places. They are freely propagated from cuttings, every one rapidly making a rooted plant when well firmed in the soil. In this manner the Osier Willow is often grown on the banks of rivers and streams to prevent the washing away of the banks. The Colt place, near Hartford, is protected in this way, and a willow-ware factory has been established in connection with it. The cuttings may be twelve to eighteen inches long, inserted half their depth in the soil at a foot or so apart each way.

Sa'llow. A common name for *Salix cinerea, S. Caprea*, and the allied species, which are not flexible like the Osier but furnish the best charcoal for gunpowder.

Sa'lmea. Named in honor of *Prince Charles* of *Salm-Dyck* in Holland, an enthusiastic cultivator of plants. Nat. Ord. *Compositæ.*

A genus of about a dozen species of trailing, somewhat shrubby plants, peculiar to tropical America and occurring most commonly in the West Indies. Two species, *S. hirsuta* and *S. scandens*, both very pretty plants with white flowers, are in cultivation, and are readily increased by cuttings.

Salmon-Berry. A common name for *Rubus spectabilis.*

Salpi'chroa. From *Salpinx*, a tube, and *chroos*, skin; alluding to the form and texture of the flowers. Nat. Ord. *Solanaceæ.*

A genus of green-house shrubs, natives principally of the Andes of South America. *S. glandulosa*, the only introduced species, has yellow flowers with entire, long-petioled leaves. It forms an erect, much branched shrub about two feet high; it was introduced from Chili in 1844, and is increased by seeds or cuttings.

Salpiglo'ssis. From *salpinx*, a tube, and *glossa*, a tongue; alluding to the tongue-like style in the mouth of the corolla. Nat. Ord. *Scrophulariaceæ.*

Very beautiful, half-hardy, annual plants, natives of Chili. The seeds should be sown in February on a slight hot-bed, or in the green-house, and the young plants planted out in May. When grown in pots it should be frequently shifted, always into a pot only a little larger than the previous one, so as to make the plant bushy. It varies very much according to the soil and situation in which it is grown; and if kept through the winter in a green-house, it will become partly woody. There are many different kinds, some of which are made species by some botanists, but which are now generally allowed to be only varieties. Many gardeners sow the seeds in autumn, and keep the plants in frames all the winter, that they may flower early in spring. They flower freely in autumn, if the seed is sown about May where it is to grow. Introduced in 1824.

Sa'lsify. Oyster plant. See *Tragopogon porrifolius.* The cultivation is the same as for Carrot or Parsnip.

Salsola. Salt-wort. A genus of *Chenopodiaceæ*, the ashes of which, under the name of Barilla, were formerly much used in the manufacture of glass, soap, etc.

Salt-bush. Australian. *Atriplex halimoides* and other species.

Salt Tree. See *Halimodendron.*

Salt-wort. Black. *Glaux maritima.*

Salt-wort. Prickly. *Salsola Kali.*

Salvado'ra. Named after *J. Salvador*, a Spanish botanist. Nat. Ord. *Salvadoraceæ.*

An unusual amount of interest is attached to this genus on account of one of the species belonging to it being supposed to be the Mustard Tree of Scripture. The five described

species are shrubs or small trees, and have a geographical range extending from central Africa, Abyssinia and Egypt through southwestern Asia to India and Ceylon. "The identification of plants mentioned in the Bible is a task of great difficulty, and in almost all instances the results of the most learned investigations, whether by biblical commentators or by botanists, is unsatisfactory and open to doubt. In our English version of the Bible the names of plants have been made to agree with those now in use, and the obvious inference among the unlearned is that the plants are the same. The researches of botanists, however, have shown that the Tares, the Aloes, the Hyssop, and other Scriptural plants differ widely from those so called at the present day; and some writers have therefore thought it probable that the same is the case with the Mustard spoken of in the Gospels, the seed of which St. Matthew says is the least of all seeds; but when it is grown it is the greatest among herbs, and becometh a tree, so that the birds of the air come and lodge in the branches thereof. It is obvious that this description does not agree with the common Mustard (*Sinapis*) as seen in this country, and consequently the assertion that the Scriptural plant belonged to a totally different genus has been readily believed. During their travel in the Holy Land, Captains Irby and Mangles met with a small tree (ascertained by Professor Don to be a *Salvadora*) with a small, pungent, Mustard-like fruit, and they thought it might probably be the tree referred to by Christ. This supposition was afterwards strengthened by Dr. Royle, who found that the trees in question bore the same Arabic name (*Khardal*) as the common Mustard, and that it was commonly regarded in Syria as the Mustard-tree of Scripture, though it is to be observed that the *Sinapis* grows to a much greater size in Syria than with us, and is frequently seen as high as twelve or fifteen feet, so that the birds might easily lodge in its branches. The species of *Salvadora* growing in Syria is said by both Don and Royle to be *S. Persica*, but that is a plant of small size, not a tree. *S. indica*, however, a common Indian and Cingalese species, grows to a considerable height, and is probably the one meant."—Treas. of Botany.

Salvadora'ceæ. A small natural order of dwarf trees or shrubs, natives mostly of Western Asia, Africa, and the Mascarene Islands, very closely allied to *Oleaceæ*. Only three genera, *Salvadora*, *Monetia* and *Dobera*, have as yet been referred to this order.

Sa'lvia. Sage. From *salvo*, to save; in allusion to the healing qualities of the Sage. Nat. Ord. *Labiatæ*.

This extensive genus is composed of handsome flowering plants, some of which are hardy and herbaceous, while others are tender and assume a half shrubby character. They are particularly useful for filling large beds in the flower garden through the summer, where such kinds as *S. patens*, blue; *S. splendens*, scarlet, and *S. fulgens*, red, are very showy. *S. splendens* is a native of Mexico, introduced in 1822, and is one of the best for garden decoration. Of *S. splendens*, within the past few years we have had many singular and beautiful varieties, one being pure white, another scarlet and white striped, and still later a distinct crimson color. There are also several beautiful species that at one time were grown in the green-house for the sake of their flowers in winter, but are not much valued now for that purpose. *S. officinalis* is the common Garden Sage. There is a very pretty variegated variety of this, grown in the border as an ornamental plant. The hardy perennial species are few compared with the large number of half-hardy species in cultivation. One of the handsomest of these is *S. pratensis*, a British species, with flowers of rich blue color. There are also white and red varieties. *S. sylvestris* is a still handsomer species, with long spikes of very showy deep purple flowers. The well-known *S. Sclarea*, and the variety *S. S. bracteata*, make noble plants in a mixed border, and so does *S. Forskohlei*, a species similar in habit and color of flowers to the preceding. *S. hians*, introduced from Cashmere in 1830, has flowers of a beautiful blue color, and is the finest of all. It is, however, rarely seen in cultivation. The Silvery Clary (*S. argentea*) is also an excellent border plant. It has silvery leaves from six to twelve inches long, very showy and ornamental. The various species are propagated by seeds, cuttings or division.

Salvi'nia. Named in honor of *Antonio Maria Salvini*, a Greek professor at Florence. Nat. Ord. *Marsiliaceæ*.

S. natans, probably the only species, is a hardy aquatic plant found floating on still water (like the Lemna) in many parts of the Northern Hemisphere and in tropical and South America. "This pretty little floating aquatic, which, like *Azolla*, is suitable for a stove, green-house, or in-door aquarium, is easily managed in summer time, simply requiring to be let alone, and have its water changed, if necessary; but in the winter it is often lost through a want of knowledge of its life history. The mature plant floats on the water, and has no true roots, though the row of divided leaves on the under side of the stem look like roots at first sight, and assume their functions. Among these the spore capsules are developed, and from them the plant must be grown annually, as the old plants die in the winter. The best way to preserve the spores is to half fill a broad pan with sandy loam, and then fill up with water; when the water has cleared, place a number of plants upon it and stand the pan in a cold green-house. In the winter the plants will all die, but the spores will remain in the loam, which must not be allowed to become dry, and the next spring they will reproduce the plant."—N. E. Brown.

Sa'mara. A wing-fruit or key, as the Maple, Ash or Elm.

Sambu'cus. Elder. From *sambuca*, a musical instrument, which is supposed to have been made of Elder-wood. Nat. Ord. *Caprifoliaceæ*.

The common Elder of our hedgerows is *S. Canadensis*, and it may be considered typical of the order. Few of the species are considered of much value, though *S. Canadensis* is used to some extent to make a domestic wine. The most ornamental of the species is *S. pubens*, which has large, loose panicles of bright scarlet berries. This species is occasionally found in moist high grounds from

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New York southward. It is very abundant and beautiful on the slopes of the Alleghany Mountains. The Golden Elder, *S. nigra aurea*, is an excellent ornamental plant for shrubberies or lawns, its bright golden foliage rendering it very picturesque and effective. If the young shoots are regularly pinched back, the plants may be kept dwarf and of a fine golden color all summer.

Sambul Plant. A common name for *Ferula Sambul.*

Sa'molus. A genus of *Primulaceæ*, consisting of small marsh plants with white flowers. *S. Valerandi*, the Brook-weed, or Water Pimpernel, is remarkable only for its wide geographical range, there being scarcely any country in which it does not abound where the soil is wet and gravelly. *S. littoralis*, a native of New Zealand, is a pretty trailing plant, with long, slender stems, furnished with small evergreen foliage, and in summer with numerous pink blossoms. It is a most desirable hardy plant for a moist spot in the rock-garden, as it delights in plenty of moisture at the roots; it is still rare in cultivation.

Samphire. *Crithmum maritimum*, the aromatic, saline, fleshy leaves of which are used in pickles. See also *Salicornia.*

Sa'myda. The Greek name of the Birch; applied to this genus because of its resemblance. Nat. Ord. *Samydaceæ.*

A small genus of stove-house, evergreen shrubs, natives of the West Indies, and typical of the Nat. Ord. *Samydaceæ*, which contains some seventeen genera, few of which are in cultivation. *S. glabrata* and *S. serrulata*, with campanulate, white flowers, are ornamental plants, succeeding best in a compost of loam and peat, and are readily increased by cuttings.

Sanche'sia. Named in honor of *Josef Sanchez*, Professor of Botany at Cadiz. Nat. Ord. *Acanthaceæ.*

A small genus of evergreen, green-house shrubs, from Bolivia. There are eight described species, natives of Peru, Colombia and Brazil. *S. nobilis variegata*, the only one introduced to any extent into our greenhouses, is a very beautiful, free-growing plant. The leaves are large, oblong, deep green and boldly striped with rich golden yellow. The flowers are clear yellow, issuing from crimson bracts. It requires to be grown in a warm, moist house, in light, rich soil, and is readily increased from cuttings. Syn. *Ancylogyne.*

Sandal-wood. See *Santalum.*

Sandarach Gum-tree. A common name for *Callitris quadrivalvis.*

Sandbox-tree. See *Hura.*

Sanderso'nia. Named after *John Sanderson*, Honorary Secretary of the Horticultural Society of Natal. Nat. Ord. *Liliaceæ.*

A pretty monotypic genus found in Natal, consisting of an erect-growing, tuberous-rooted herb, with simple leafy stems and nodding orange-colored flowers, on solitary slender pedicles. Propagation is effected by seeds or offsets. Introduced in 1852.

Sand Myrtle. *Leiophyllum buxifolium.*

Sand Verbena. *Abronia umbellata.*

Sand-wort. See *Arenaria.*

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Sanguina'ria. Blood-root. From *sanguis*, blood; all the parts of the plant yield a red juice when cut or broken. Nat. Ord. *Papaveraceæ.*

The only described species of this genus is *S. Canadensis*, popularly known as Blood-root. It is a beautiful, hardy, herbaceous plant, found in the woods throughout the United States. Its flowers are pure white, borne singly on a slender stem about six inches high. It is one of the earliest and most attractive of our native Wild Flowers, and can be easily transferred to the flower-garden. As the petals are greatly increased in size and number by good cultivation, it should be planted in rich soil and partial shade.

Sanguine, Sanguineus. Dull red passing into brownish-black.

Sanguiso'rba. A genus of herbaceous plants of the Nat. Ord. *Rosaceæ*, of which several species are in cultivation. *S. officinalis*, or Burnet, received its name from its supposed vulnerary qualities. *S. Canadensis* resembles the above but bears its flowers, rendered conspicuous by their white anthers in long cylindrical spikes.

Sani'cula. Sanicle, Black Snake-root. From *sano*, to heal; supposed healing effects of *Sanicula Europea.* Nat. Ord. *Umbelliferæ.*

A genus of weeds of no special interest beyond their supposed medicinal qualities.

Sansevie'ra. Bow-string Hemp. In honor of *M. Sansevier*, a Swedish botanist. Nat. Ord. *Liliaceæ.*

A very singular genus of plants, found chiefly in Africa and the East Indies. They are stemless perennial plants, throwing out runners, and having only root-leaves, which are thick, fibrous and fleshy, and usually sword or lance-shaped, from two to three feet long, and from two to four inches wide. When young they are marked with pale-colored cross-bands, but ultimately a uniform shining green. *S. Zeylanica* is the species most grown in the green-house, the markings being more distinct and positive. The natives call the plant Bow-string Hemp, because of the strong and fine quality of the fibre it yields, and which is used in the manufacture of cordage and fine string. They are propagated by division, and should be grown in strong heat, with plenty of moisture. Introduced in 1731.

Santala'ceæ. A natural order of trees, or more frequently shrubs or herbs, often parasitical on roots, with alternate, rarely opposite, entire leaves, and small green flowers in terminal or lateral cymes or spikes. The species are dispersed over tropical and temperate regions, but are most abundant in the Old World; they are distributed into about twenty genera and nearly two hundred species.

San'talum. Sandal-wood. From its Persian name, *sandul*, signifying useful. Nat. Ord. *Santalaceæ.*

The species of this genus are trees or shrubs, natives of Asia, Australia and the Pacific Islands. The flowers of *S. album*, the true Sandal-wood, are small, and are produced in spikes or racemes; but the chief value of the plant consists in the fragrance of the wood, which is so great that the wood is burned for incense, and is said to be destructive to all noxious insects. The same species

grown under glass with artificial heat, has very little of the fragrance for which the species is remarkable.

Santoli'na. Lavender Cotton. From *sanctus*, holy, and *linum*, flax; in allusion to its medicinal qualities. Nat. Ord. *Compositæ.*

A genus of dwarf evergreen shrubs, natives of the south of Europe. *S. Chamæcyparissus*, var. *incana*, is a valuable bedding plant and particularly useful in ribbon borders. Its slender, twig-like growths and knotty leaves are densely covered with silvery tomentum, contrasting finely with plants of dark foliage. It is readily increased by cuttings.

Sanvita'lia. Named after the *Sanvitale* Family, of Parma. Nat. Ord. *Compositæ.*

S. procumbens is a beautiful little Mexican annual, well adapted from its dwarf and compact habit of growth for covering a bed in a flower-garden. The flowers are large in proportion to the size of the plant and are of a rich brown and yellow color. It is quite hardy, and only requires sowing in March or April in the open border. Introduced in 1798.

Sapinda'ceæ. A large natural order of trees or shrubs, sometimes climbing, and very rarely almost herbaceous, dispersed over the whole globe, but more numerous in tropical regions. There are over seventy genera distributed into five tribes, or sub-orders, as follows: *Sapindeæ, Acerineæ, Dodonæa, Melianthea* and *Staphyleæ*; comprising six to seven hundred species. Several produce edible fruits and others furnish timber. Well-known genera are *Acer, Cardiospermum, Paullinia, Æsculus, Melianthus, Cupania*, etc.

Sapi'ndus. The typical genus of *Sapindaceæ*, consisting of trees and shrubs, found in both hemispheres, mostly within the limits of the tropics. The species are of botanical and economic interest only, the fruits of several being used in the tropics as a substitute for soap, their outer covering or shell containing a saponaceous principle in sufficient abundance to produce a lather with water. Their excessively hard, round, black seeds are used for making rosaries, bracelets, buttons, etc., and a medicinal oil is extracted in India from those of *S. emarginata.*

Sapodi'lla or **Sapotilla Plum.** *Sapota Achras.* The West Indian Sapodilla-wood yielded by this tree is a fancy wood used for furniture.

Sapona'ria. Soapwort. Bouncing Bet. From *sapo*, soap; the bruised leaves of *S. officinalis* form a lather-like soap when agitated in water. Nat. Ord. *Caryophyllaceæ.*

A genus of hardy annuals and herbaceous perennials, mostly natives of Europe. One species, *S. ocymoides* deserves for its neat habit, and the profusion with which it bears its pretty pink flowers in summer, to be cultivated in every garden. It is a trailing plant, and therefore suitable for rock-work, the front of the borders or for small beds; and being at the same time quite hardy, and not particular as to soil or situation, it is well adapted for suburban gardens. The double variety of *S. officinalis* is also a showy plant of the easiest management, and continues to produce its numerous flesh-colored flowers from June to November. This species has become naturalized, until, notwithstanding its beauty, it

has in some places become troublesome as a weed.

Sapo'ta. Bully-tree. Sapodilla or Sapotilla Plum; the native name. Nat. Ord. *Sapotaceæ.*

S. Achras is a native of the West Indies and Central America, where it forms a tree from ten to fifty feet in height. It produces a very luscious fruit resembling an apple in shape; much esteemed in the West Indies, but those that have ripened in cultivation have been little esteemed. The bark and seeds have medicinal properties. Syn. *Achras Sapota.*

Sapota'ceæ. A natural order of trees and shrubs, chiefly tropical or sub-tropical, with the juice frequently milky, and alternate, undivided, coriaceous leaves. "Several species are useful to man. The fruits of *Lucuma mammosa* (the Marmalade of the West Indies) are a very agreeable food, as are those of Sapota Achras, and various species of Chrysophyllum which are much sought after in the Antilles; those of *Bassia* and *Imbricaria* are also edible. Other genera, both Asiatic and African (*Sideroxylon, Argania*, etc.), are employed for building purposes on account of the hardness of the wood, whence the name Ironwood. There are over twenty genera in the order and over three hundred species; the following are good examples: *Chrysophyllum, Isonandra, Lucuma, Bumelia* and *Mimusops.*"—Le Maoût and Decaisne.

Sapucaya Nut. See *Lecythis.*

Sap Wood. The new wood of an exogenous stem.

Sara'ca. Said to be from *Sarac*, the native name. Nat. Ord. *Leguminosæ.*

A small genus of shrubs or trees, natives of tropical America. The species are but little known and are generally included under *Jonesia.*

Sara'cha. Named in honor of *Isidore Saracha*, a Benedictine Monk, who sent many rare plants to the Royal Gardens at Madrid. Nat. Ord. *Solanaceæ.*

A genus of hardy or green-house herbs, natives of western America from Bolivia to Mexico. *S. Stapelioides* and *S. umbellata* are hardy annuals, with yellow or cream-colored flowers, thriving in ordinary garden soil from seeds sown in the open border.

Sarca'nthus. From *sarx*, flesh, and *anthos*, a flower; in allusion to the fleshiness of the flowers. Nat. Ord. *Orchidaceæ.*

A genus of epiphytal Orchids, natives of China and the East Indies. The flowers are mostly small but rather showy. *S. erinaceus* is a beautiful species with pink and white flowers, the lip with purple markings produced freely on drooping spikes. There are several species under cultivation. They succeed best when grown in wooden baskets with sphagnum moss, and require plenty of heat and copious waterings. During the season of rest they may be kept in a cool house and given but very little water.

Sarcoca'pnus. From *sarx, sarchos*, flesh, and *Kapnos*, the Greek name for Fumitory; in allusion to the fleshy leaves. Nat. Ord. *Papaveraceæ.*

A small genus of hardy, dwarf, tufted perennials, natives of the Spanish Peninsula and North Africa. *S. eneaphylla*, the only species introduced, has yellow flowers marked with

purplish streaks, borne in short racemes. It thrives readily in the open border, and is a good subject for the rock-garden. It may be readily increased by seeds or by cuttings.

Sarcocarp. The fleshy or succulent portion of a stone-fruit.

Sarcocau'lon. From *sarx*, flesh, and *caulon*, a stem; alluding to the fleshy stems. Nat. Ord. *Geraniaceæ*.

A genus of branching, succulent, greenhouse plants, armed with spines formed out of the persistent and hardened petioles; natives of South Africa. The flowers are purple, borne on axillary, short-stemmed peduncles. They are readily increased by cuttings of the young shoots or by root cuttings; first introduced in 1790.

Sarcoce'phalus. Guinea Peach. From *sarx*, flesh, and *kephale*, a head; alluding to the fleshy heads of fruit. Nat. Ord. *Rubiaceæ*.

A genus of stove-house trees or shrubs, sometimes climbing natives of tropical Asia, Africa and Australia. *S. esculentus* is an interesting climbing shrub, seldom seen in collections, bearing pinkish flowers, in short terminal heads, followed by edible fruit about the size of a Peach. It is called the Guinea, Negro, or Sierra Leone Peach, and may be increased by cuttings. *S. cordatus*, introduced from Australia in 1820, forms a handsome shrub, with broadly ovate or obtuse leaves, softly pubescent beneath and four to ten inches long. Syn. *Nauclea*.

Sarcochi'lus. From *sarx*, flesh, and *cheilos*, a lip; in allusion to the fleshy lip or labellum. Nat. Ord. *Orchidaceæ*.

A genus of small epiphytal Orchids from Australia and the East Indies. The flowers are white or white and yellow. The species are not usually found in collections.

Sarcoco'cca. From *sarx*, flesh, and *kokkos*; alluding to the fleshy fruits. Nat. Ord. *Euphorbiaceæ*.

A small genus of green-house, glabrous shrubs, natives of the East Indies, and the Malayan Archipelago. *S. saligna*, the best known species, has pale yellow flowers and small ovoid or globose fruits. It is sometimes cultivated under the name of *S. pruniformis*.

Sarcolo'bus. From *sarx*, flesh, and *lobos*, a pod; alluding to the fleshy seed vessels. Nat. Ord. *Asclepiadaceæ*.

A small genus of stove-twining shrubs, natives of India and the Malayan Archipelago. The species are seldom found in cultivation.

Sarcopo'dium. A small genus of Orchids, now included by Bentham and Hooker in *Bulbophyllum* and *Dendrobium*.

Sarcoste'mma. From *sarx*, flesh, and *stemma*, a crown; the leaflets of the inner corona are fleshy. Nat Ord. *Asclepediaceæ*.

A genus of climbing or decumbent, leafless shrubs, with slightly fleshy branches, natives of tropical and sub-tropical Asia, Africa and Australia. *S. Brunonianum*, the best known species, introduced from India in 1872, has bright yellow flowers, and forms quite an ornamental plant-stove climber. Syn. *Cynanchum*.

Sarmentose. Producing long runners like those of the Strawberry.

Sarmie'nta. Named after *Mart. Sarmiento*, a Spanish botanist. Nat. Ord. *Gesneraceæ*.

S. repens, the only known representative of this genus, is a dwarf-trailing Chilian herb, very beautiful, and suitable for growing in baskets. It has fleshy, oblong leaves, about an inch long, and numerous drooping, tubular, axillary flowers of a light scarlet color. It requires abundance of water, shade from bright sunshine, and a light position in a moist, cool green-house. Introduced in 1862.

Sarrace'nia. Side-saddle Flower, American Pitcher Plant, Trumpet Leaf. Named in honor of *Dr. Sarrasin*, a French physician at Quebec, who sent the first species to Europe. Nat. Ord. *Sarraceniaceæ*.

A small genus of curious and interesting plants common in boggy situations from Maine to Florida. *S. purpurea* is found in great numbers throughout the New England States, New York and New Jersey. *S. flava*, *S. Drummondii* and *S. rubra*, etc., being confined to the Southern States. They have their leaves folded spirally, in the manner of the Pitcher Plant, *Nepenthes*. They are of various heights, some being from four to six inches high, while others are nearly or quite two feet. They have no proper leaf stems, but the foot stalk is lengthened in some cases so as to serve the same end. The flower scape is in all the species longer than the leaves; the flowers are globose, nodding; colors purple, red or yellow. The curious leaves of these plants are often partly filled with water and drowned insects, which has given them a reputation for usefulness that is to be taken with some grains of allowance. The same may be said of the medicinal properties claimed for them. By crossing, many valuable and beautiful hybrids have been raised and are now in cultivation.

Sarracenia'ceæ. A small natural order of curious perennial herbs, natives of spongy, turfy bogs in this country, remarkable for their pitcher-shaped radical leaves. There are only three small genera known—*Sarracenia*, *Darlingtonia* and *Heliamphora*. The curious New Holland Pitcher-plant (*Cephalotis*) belongs to the Nat. Ord. *Saxifragaceæ*.

Sarsapari'lla. A name applied to the roots of several plants, more especially to those of several species of *Smilax*, chiefly imported from South America and Mexico, and employed in medicine.

Sarsapari'lla, False. See *Aralia nudicaulis*.

Sa'ssafras. The name is said to be a corruption of the Spanish word for *Saxifrage*. Nat. Ord. *Lauraceæ*.

S. officinale, the only known species, is common throughout the United States. In the more northern parts the tree is small, the diameter rarely exceeding eight inches; but in the Southern States it attains a height of fifty feet, with a trunk more than two feet in diameter. The *Sassafras* is well known by its aromatic, spicy bark, which has stimulant and sudorific properties, and is extensively used in medicine and confectionery. The leaves are also used in the manufacture of "Home-made beer," and also in some sections as a seasoning in sauces, while their mucilaginous properties render them useful in thickening soups.

SAS

Sa'ssafras Laurel or **Californian Laurel.** See *Oreodaphne.*

Sa'ssafras. Swamp. A common name for *Magnolia glauca.*

Sashes. A term most generally used for glazed frames, which open for ventilation in a greenhouse, or are used on pits or cold-frames, etc., where they may be kept on or pulled off as considered requisite. These latter are called movable Sashes, and are generally used six feet long by three feet wide. In houses of modern construction, most ventilating Sashes are placed along the whole of the roof on the south side, hinging them so that they are made to open at the ridge-pole by means of iron gearing and levers, and which cost from fifty to sixty cents per running foot.

Satin Flower. *Sisyrinchium Californicum.*

Satin-leaf. *Heuchera hispida* and *H. Americana.*

"Satin-leaves." The dried seed-vessels of *Lunaria biennis.*

Satin-wood. A beautiful veneering wood of India, obtained from *Chloroxylon Swietenia,* which see.

Sativus. Cultivated.

Sature'ia. Savory. From *Ssattar,* the Arabic name for all labiate plants. Nat. Ord. *Labiatæ.*

The Summer Savory, *S. hortensis,* is a hardy annual, a native of the south of Europe, and has been well-known in the kitchen garden for the last three hundred years. Having escaped from the garden, it has become naturalized in many parts of this country, especially in Ohio and Illinois. The Winter Savory, *S. montana,* is a hardy evergreen shrub, growing about a foot high, and very branching. It is a native of the south of France, is easily cultivated, and has all the essential properties of the Summer Savory. Grown from seeds, like Thyme and Sage, or other herbs.

Saty'rium. Supposed to be from *satyrus,* a satyr. Nat. Ord. *Orchidaceæ.*

Terrestrial orchidaceous plants from the Cape of Good Hope. The leaves are very curious from the flat manner in which they spread themselves on the surface of the pot; and the flowers, which are generally yellow, are very handsome. They should be grown in very sandy loam or leaf mould, and kept in a green-house, as they are very apt to damp off, if over-watered. Propagated by division.

Saunde'rsia. Named after W. W. Saunders, an ardent English collector and cultivator of rare and curious plants, 1809–1879. Nat. Ord. *Orchidaceæ.*

S. mirabilis, the only species, is a stove-house epiphytal orchid from Brazil. It has medium-sized, greenish-white flowers, flushed with yellow and purple. The stem or pseudo-bulb is very short, and is one-leaved. The species is cultivated more as a botanical curiosity than for its beauty.

Saurau'ja. Named after *Sauraujo,* a Portuguese botanist. Nat. Ord. *Dilleniaceæ.*

A small genus of tropical trees and shrubs that have given the botanist considerable trouble in their classification, it having been placed in several different orders. *S. lanceolata* is a stout, free-growing plant, with large,

SAW

alternate, bright green leaves, which are oblanceolate in outline, and are marked regularly by numerous depressed veins curving outwards from the mid-rib towards the margin, which is armed by small, stiff, spiny teeth. The leaves have an elegant appearance, on account of their cheerful green color and their conspicuous parallel divergent venation. The flowers are white, disposed in panicles of several together upon stalks growing from the angles of the leaves.

Sauro'matum. From *saura,* a lizard, alluding to the speckled interior of the spathe. Nat. Ord. *Aroideæ.*

A small genus of tuberous-rooted, herbaceous, perennial, stove-house plants, natives of tropical Asia and Africa. *S. guttatum, S. venosum* and a few other species are in cultivation.

Sau'ropus. From *sauros,* a lizard, and *pous,* a foot; the application is not apparent. Nat. Ord. *Euphorbiaceæ.*

A genus of plant-stove shrubs, with the habit of *Phyllanthus,* natives of the East Indies and the Malayan Archipelago. *S. albicans Gardnerianus* has oblong, ovate leaves, acuminate at the apex, small, deep green, with a grayish central blotch. The branches are green, slender and angular. It was introduced from Ceylon in 1861, and is propagated by cuttings of the half-ripened wood or by root-cuttings.

Sauru'rus. Lizard's Tail. A small genus of hardy, aquatic, perennial herbs, which gives its name to the small Nat. Ord. *Saururaceæ.*

S. cernuus, common in our marshes and swamps, has white flowers, in a dense spike, nodding at the end. Other species, similar in general appearance, have been introduced to cultivation from Eastern Asia. Increased by seeds or division.

Saussu'rea. Saw-wort. Named after the Swiss philosopher, *De Saussure,* 1740–99, who possessed a considerable knowledge of botany.

A genus of herbaceous alpine plants, belonging to Nat. Ord. *Compositæ,* and comprising about sixty species, with white tomentose leaves and crowded tufts of rather large purple flowers. The species are not very ornamental and therefore not much in cultivation.

Sauvage'sia. Named after *F. B. de Sauvages,* Professor of Botany at Montpellier, 1706–1767. Nat. Ord. *Violariaceæ.*

A genus of about ten species of herbs or sub-shrubs, all natives of tropical America. *S. erecta,* the Iron Shrub or St. Martin's Herb, is a charming little tender annual, with pink or purple-red flowers, introduced from Mexico in 1824.

Savannah Flower. A name applied to *Echites suberecta* and other species.

Savin. *Juniperus sabina.*

Savory. See *Satureia.*

Savoy Cabbage. See *Cabbage.*

Savoy Spinach. See *Spinacia.*

Sawdust. This is occasionally used as a manure and sometimes as a mulch, or for protecting tender bulbs, etc., in winter. Its manurial value is considerably greater when it is well decayed, but more so when it is used as an absorbent of liquid manures in

SAPONARIA.

SCABIOSA (DWARF DOUBLE).

SCHIZOPETALON WALKERI.

SAXIFRAGA SARMENTOSA.

SCABIOSA (TALL).

SCHIZANTHUS.

SAXIFRAGA PELTATA.

SCILLA BIFOLIA.

SCILLA CAMPANULATA.

SCILLA HYACINTHOIDES.

SCILLA PERUVIANA.

SCILLA SIBIRICA.

stables, or other liquids containing ammonia, and made up into a compost with farm-yard manure, earth, or other materials before application.

Saw-wort. A common name for certain species of *Saussurea* and *Serratula.*

Saxatilis. Growing on rocks or stones.

Saxego'thea. This genus of *Coniferæ* takes its name from a German title of the late Prince Consort, of England. *S. Conspicua,* the only species, is a native of Patagonia, where it forms a small tree, having the appearance of a *Yew,* though its botanical relationship is with the Juniper. Introduced in 1846.

Saxi'fraga. Saxifrage. From *saxum,* a stone, and *frango,* to break; its reputed medicinal qualities in calculus. Nat. Ord. *Saxifragaceæ.*

In this very extensive genus, numbering more than a hundred and fifty species, we have some very beautiful, hardy perennials, admirably suited for rock-work or any rough borders where it is difficult to make most plants grow. Unfortunately, many of the most beautiful and desirable species for the rock-garden are not suited for this climate and refuse to stand our hot, dry summers. The large, leathery-leaved group, of which the Siberian *S. crassifolia* is the best known, thrives well, especially if slightly protected in winter. *S. cordifolia,* with large trusses of rose-colored flowers and glossy leaves, much resembles it. *S. peltata,* a gigantic species of the Sierra Nevada, bears its large corymbs of pale pink flowers on tall stalks above the huge, shield-like leaves. Two varieties of this species occur, one found at an elevation of six to seven thousand feet, the other growing in and along streams through the lower and warmer portions of California. The former is evidently much hardier, and also more effective, its leaves, in its native habitat, often attaining a diameter of from three to four feet. *S. Cotyledon pyramidalis,* known as the pyramidal Saxifrage, is a great favorite with the London market florists. It belongs to that large section having fleshy-incrusted leaves, arranged in symmetrical rosettes, and bears a flower-spike sixteen to twenty-four inches high, covered with thousands of white flowers about half an inch across, remaining in perfection for several weeks. It is a great favorite and is much used for window-boxes, rustic stands, etc., and is rapidly increased by offsets. *S. sarmentosa,* a native of China, is a desirable plant for hanging baskets or other rustic designs. It is a pretty plant when in flower and is popularly known as Strawberry Geranium, Beef-steak Plant, and several other local names without much significance. *S. sarmentosa tricolor,* a variety introduced in 1870, has beautiful variegated white and rose-colored markings on the leaves, but is apt to run back to the original species. There are several very pretty species of *Saxifraga* in our woods and waste places, possessing more real beauty than some more sought after. All the species grow with very little care and attention, requiring only a sandy, moist, and shady situation. Propagated from runners and division.

Saxifraga'ceæ. A natural order of trees, shrubs, or herbs of variable habit, natives generally of temperate and frigid regions. Many of the species are of great beauty, though their useful properties are unimportant. The limits of the order are as yet far from settled. Hooker and Bentham divide it into six tribes or sub-genera—*Cunonieæ, Escallonieæ, Francoeæ, Hydrangeæ, Ribesieæ,* and *Saxifrageæ* proper. It includes about seventy-five genera, and over five hundred species. Good examples are *Astilbe, Chrysosplenium, Hydrangea, Heuchera, Escallonia, Ribes,* and *Saxifraga.*

Saxifrage. The genus *Saxifraga,* which see.

Saxifrage. Burnet. *Pimpenella Saxifraga.*

Saxifrage. Golden. The genus *Chrysosplenium.*

Saxifrage. Meadow. *Saxifraga granulata,* and *Silaus pratensis.*

Scabio'sa. Scabious, Mourning Bride. From *scabies,* the itch; the common kind is said to cure that disorder. Nat. Ord. *Dipsacaceæ.*

A small genus of hardy, annual and herbaceous perennials, mostly natives of Europe and the East Indies. *S. atropurpurea,* is the well-known Mourning Bride. All the species grow freely in the garden, and are grown from seeds sown in early spring. The German florists have succeeded in raising some dwarf varieties, with very handsome double flowers, in a variety of colors, from nearly pure white to dark purple maroon. It is a useful plant for summer flowers.

Scabious. The genus *Scabiosa.*
Blue. *Scabiosa succisa.*
Caucasian. *Scabiosa Caucasica.*
Devil's Bit. *Scabiosa succisa.*
Field. *Scabiosa arvensis.*
Mt. Parnassus. *Pterocephalus Parnassi.*
Sheep's Bit. *Jassione montana.*
Sweet. *Scabiosa atropurpurea.*

Scabrous. Rough with little asperities.

Scæ'vola. From *Scæva,* the left hand; alluding to the form of the corolla. Nat. Ord. *Goodeniaceæ.*

The greater number of the species of this extensive genus are peculiar to Australia and the Sandwich Islands. Two, however, are found growing on the sea shores of tropical Asia, western Africa, from Senegal to the Cape of Good Hope, Mauritius and Madagascar, the West Indies, Mexico and the Pacific Islands. *S. Lobelia* (called also *S. Kœnigii* and *S. Taccada*), the Malay Rice-paper Plant, one of the widely dispersed species, is an erect shrub from two to five feet high, with a thick, succulent stem, full of pith when young, but ultimately becoming hard and woody. The pith of the young stems is beautifully fine and white, and resembles that of the Rice-paper Plant, with which it has been confounded; but it is seldom obtainable in pieces exceeding three-quarters of an inch in thickness. It is much used by the Malays and Siamese for making artificial flowers, small figures, and other articles used as decorations at feasts and festivals.

Scalariform. Ladder-shaped; the name of the tubes of vascular tissue found in ferns.

Scale Insects. See *Insects.*

Scales. Small, rudimentary, close-pressed leaves, resembling minute scales.

Scallion. A common name for *Allium Ascalonicum Majus.* The term is also applied to all

Onions that do not bulb, but form long necks, like Leeks.

Scammony Plant. A cathartic gum resin obtained from the root of *Convolvulus Scammonia.*

Scandens. Climbing, but not twisting.

Scape. A stem rising from the crown of a root, and bearing nothing but flowers.

Scapiform, Scapose. Resembling a scape.

Scarborough Lily. See *Vallota purpurea.*

Scariose. Membraneous and dry.

Scarlet Geranium. See *Pelargonium.*

Scarlet Oak. See *Quercus.*

Scarlet Painted Cup. *Castelleja indivisa.*

Scarlet Runner. See *Phaseolus multiflorus.*

Scarred. Marked by the scars left by bodies that have fallen off. The stem, for instance, is scarred at the points whence leaves have fallen.

Scattered. Dispersed; used in opposition to whorled, opposite, ternate, or similar terms.

Sceptra'nthes. From *Skeptron*, a sceptre, and *anthos*, a flower. An ornamental plant from Texas, with whitish-pink flowers, of the Nat. Ord. *Amaryllidaceæ*, for the culture and propagation of which see *Zephyranthes.*

Sceptre-Flower. The popular name of *Sceptranthes Drummondi.*

Schaue'ria. Named after *J. R. Shauer*, 1813–48, Professor at Griefswald. Nat. Ord. *Acanthaceæ.*

A genus of glabrous or pubescent herbs, or sub-shrubs, natives of Brazil. *S. Calycotricha* and *S. flavicoma*, the only two species in cultivation, have large terminal thyrses of beautiful yellow flowers, and have been long known in cultivation as *Justicia*, which see for culture.

Schee'lea. Named in honor of Scheele, a German chemist. Nat. Ord. *Palmaceæ.*

A genus of Palms, natives of tropical America, requiring to be grown in the plant-stove. Several species are in cultivation, the best known of which, *S. unguis*, is an excellent plant for table decoration in a young state, or for the conservatory when older. It is increased by imported seeds.

Schi'ma. Said to be the Arabic name. Nat. Ord. *Ternstræmiaceæ.*

A small genus of trees or shrubs, natives of tropical Asia and the Indian Archipelago. *S. Noronhæ*, the only species yet introduced, is a compact growing shrub, with showy white flowers, clustered in a short raceme. It thrives well in peaty soil, and is propagated by cuttings. Introduced in 1849.

Schi'nus. From *Schinos*, the Greek name of the Mastic-tree; a resinous juice exudes from the tree similar to mastic. Nat. Ord. *Anacardiaceæ.*

A small genus of tender and half-hardy fragrant shrubs from South America. The flowers are small, white, in terminal or axillary clusters or panicles. "The leaves of some of the species are so filled with a resinous fluid that the least degree of unusual repletion of the tissue causes it to be discharged; thus some of them fill the air with fragrance after rain, and *S. molle*, and some others, exp el their resin with such violence, when immersed in water, as to have the appearance of spontaneous motion in consequence of the recoil." This species is popularly known as the Pepper shrub, and is a very desirable plant where it will stand uninjured through the winter.

Schismatoglo'ttis. A genus of *Aroideæ*, closely allied to *Dieffenbachia*, and requiring the same treatment.

S. longispatha, a recent introduction from Borneo, is a very pretty dwarf, neat-habited plant. Its short, erect stems grow in tufts, spreading by short rhizomes, and are furnished with obliquely ovate leaves some four inches long, of a lightish green color, marked with a feathered central band of silvery gray, through which runs the distinct green mid-rib. The inflorescence is curious in structure, the most conspicuous parts being the small yellowish-green spadices. *S. crispata* is also a recent introduction from Borneo (1881). These, in common with the other species, some ten or more in number, are admirable decorative plants.

Schivere'ckia. Named after *A. Schivereck*, a Russian botanist. Nat. Ord. *Cruciferæ.*

S. podolica, the only species, is a pretty little hardy, herbaceous plant, allied to Alyssum, with which genus it is included by some botanists. It is a native of Russia, and has rosettes of notched whitish leaves, undulated at the margin, and produces corymbs of white flowers in early spring. Propagation by division or from seeds.

Schizæ'a. From *schizo*, to cut or split; appearance of the fan-like spikes. Nat. Ord. *Polypodiaceæ.*

A small genus of ornamental Ferns, mostly inhabiting the East and West Indies and South America. They are curious and interesting plants, distinguished by their linear, simple, or flabellate fronds and paniculate fructification, borne upon the apex of the segments, forming a beautiful crest to the frond. They require a warm house, liberal watering, and a moist atmosphere for their perfect development. *S. pusilla*, a native species, is found sparingly in the marshy pine barrens of New Jersey.

Schiza'ndra. From *schizo*, to cut or split, and *aner, andros*, a male; the stamens are split. Nat. Ord. *Magnoliaceæ* (Tribe Schizandreæ).

Of the six species that comprise this genus one is a native of the Southern States, the rest are found in tropical or Eastern Asia. *S. Chinensis*, introduced from Northern China in 1860, is a handsome climbing shrub, with bright rose-carmine flowers, succeeded by bright scarlet berries, which are persistent during the greater part of the winter. *S. coccinea*, our native species, is a tall-climbing shrub, with alternate, oblong, membranaceous, deciduous leaves, and small crimson flowers on long peduncles, found in shady woods from Florida to North Carolina and westward. The beautiful, silvery-foliaged stove-house climber, *Sphærostema marmoratum*, is now included under this genus by some authors as *S. marmorata.*

Schiza'nthus. Butterfly or Fringe Flower. From *schizo*, to cut or split, and *anthos*, a flower; in allusion to the irregularly divided corolla. Nat. Ord. *Scrophulariaceæ.*

A genus of very beautiful, half-hardy, annual flowers, which may be sown either in autumn

or spring. If wanted to flower in spring, the seed should be sown in August or September as soon as it is ripe, in light, rich mould; and the young plants should be kept in well-drained pots in a frame or green-house during winter. When the seeds are sown in spring, it should be on a hot-bed or in the green-house, and the young plants should be removed into the open air in May, when they will flower in autumn. The plants are much larger in the open ground, and the flowers are finer, if the soil be sufficiently rich and light; but care should be taken to plant them in a sheltered situation, or to tie them to stakes, as the stems are very brittle and liable to be broken off by high winds. The principal kinds of Schizanthus are *S. pinnatus*, with its varieties, all of which have purplish flowers; *S. retusus*, with scarlet and yellow flowers, and *S. Priestii*, with white and yellow flowers. Of these, *S. pinnatus*, and its allied species or variety, *S. porrigens*, are the hardiest. The genus is confined to South America, and are mostly found in Chili. Introduced in 1822.

Schizolo'bium. From *schizo*, to cut or split, and *lobos*, a pod; probably alluding to the opening of the pod. Nat. Ord. *Leguminosæ*.

A small genus of tall, evergreen plants, natives of Brazil and Panama. *S. excelsum*, the only introduced species, bears long peduncles of bright yellow flowers, and large divided leaves, white beneath and golden-pilose on the middle nerve, the common petioles of which are often two feet long. It was introduced from Brazil in 1874, and is propagated by cuttings of the half-ripened shoots.

Schizome'ria. From *schizo*, to cut, and *meris*, a part; alluding to the cut petals. Nat. Ord. *Saxifragaceæ*.

S. ovata, the only described species, is an ornamental, evergreen plant, with small white flowers in terminal cymes, introduced from Australia in 1825. It thrives best in a compost of sandy peat and loam, and is increased by cuttings.

Schizope'talon. From *schizo*, to cut, and *petalon*, a petal; the petals are cut. Nat. Ord. *Cruciferæ*.

An annual flower, with curiously cut petals, and a strong tap-root. *S. Walkeri*, the only species in cultivation, grows about one foot high and bears on slender stems numerous white, almond-scented blossoms, which are elegantly fringed at the edges. As it does not bear transplanting well, it should be sown where it is to remain, in the open border, in May. It was introduced from Chili in 1821.

Schizophra'gma. Climbing Hydrangea. From *schizo*, to cut, and *phragma*, an inclosure or wall; the portions of the wall between the ribs of the fruit fall away when it is ripe. Nat. Ord. *Saxifragaceæ*.

S. Hydrangeoides is a hardy, climbing shrub, introduced from Japan by Thomas Hogg. It is a handsome, rapid-growing plant, with almost all the characteristics of the *Hydrangea*, having similar white flowers as in the shrubby species. It clings with tenacity to any tree or building by which it may be planted, and attains a height of fifty feet. It remains a long time in flower, making it a conspicuous and desirable plant. It is perfectly hardy, and is rapidly increased by cuttings or by

seeds, which, however, have as yet to be procured from its native country, Japan.

Schizo'stylis. Crimson Flag, Kaffir Lily. From *schizo*, to cut, and *stylos*, a style; the style is divided into three long filiform branches. Nat. Ord. *Iridaceæ*.

S. coccinea, the best known species, is a very pretty, half-hardy, Cape bulb, belonging to the Gladiolus family. The leaves are neat and glossy, and the flowers are rosy-scarlet, produced in December. Many efforts have been made to bring this bulb into flower in summer or autumn, which would make it one of the most popular of the natural order to which it belongs. Every effort has, however, failed, and it must, consequently, be flowered in the green-house. It was introduced in 1846, and is rapidly increased by offsets.

Schli'mmia. In honor of *M. Schlimm*, one of M. Linden's plant collectors, who discovered the plant. Nat. Ord. *Orchidaceæ*.

S. jasminodora, is an epiphytal Orchid, introduced from Central America in 1852, remarkable for its extreme fragrance. Its flowers are pure white, borne on flower-stalks about a foot high. It requires to be grown in a warm house.

Schlumberge'ria. Named in honor of *F. Slumberger*, a Belgian horticulturist. Nat. Ord. *Bromeliaceæ*.

A South American genus of two or three species of stove-house, perennial plants, removed from *Tillandsia* and *Massangea*. *S. Morreniana*, is a noble plant with gracefully recurving green leaves, three feet long, marked with numerous darker green, transverse lines above, and with reddish lines beneath. It was introduced from the Andes of Peru in 1883, and requires the same treatment as *Tillandsia*. Syn. *Anoplophytum*.

Schmide'lia. Named in honor of *C. C. Schmidel*, a Professor of Botany at Erlangen. Nat. Ord. *Sapindaceæ*.

A large genus of shrubs or small trees, principally natives of tropical America. Several species have been introduced, but, as they have no horticultural value, they are probably lost to cultivation.

Schœ'nia. Named in honor of *Dr. Schœn*, a botanist. Nat. Ord. *Compositæ*.

S. Cassiniana, the sole representative of the genus, is very closely allied to Helichrysum, requiring the same general treatment. It has bright yellow flowers, borne in a loose terminal corymb, and was introduced from Australia in 1845.

Schombu'rgkia. Named after *Sir Robert H. Schomburgk*, a zealous naturalist and a traveler in British Guiana on account of the Royal Geographical Society. Nat. Ord. *Orchidaceæ*.

A very handsome genus of epiphytal Orchids, with large pseudo-bulbs, and strong, leathery leaves. The flower-spikes are produced from the apex of the pseudo-bulbs, and are from three to four feet in length, bearing large, rich-colored flowers of singular form. The plants should be attached to a piece of cork and suspended from the roof of the hot-house. They require a warm, moist atmosphere in the growing season, and a very dry one when at rest. There are but a few species in this genus, the most desirable being *S. tibicinus*, the Cow-horn Orchid, from Honduras, and *S. Lyonsi*,

which has been called the prettiest of the genus, and which succeeds either in a basket or on a block. It was introduced from Jamaica in 1863.

Scho'tia. Kaffir Bean-tree. Named in honor of *Richard Van der Schot*, a traveling companion and friend of Jacquin.

A genus of *Leguminosæ*, comprising four species of shrubs, or small trees, confined to southern and sub-tropical Africa. *S. tamarindifolia* (*speciosa*) forms a scrubby bush eight to ten feet high, having pinnate leaves and terminal panicles of deep crimson blossoms. According to Dr. Atherstone, the beans from the pods of this plant are roasted and eaten in the Albany districts, where they are called Boerboom, and the powerfully astringent bark is used medicinally, as well as in tanning. The species are all very handsome when in bloom.

Schou'ia. Named in honor of *J. F. Schouw*, a celebrated Danish botanist. Nat. Ord. *Cruciferæ*.

A genus of tall, branched, highly glabrous herbs, natives of Arabia. *S. Arabica* is a very pretty annual with rosy-purplish flowers, thriving well if sown in light sandy soil in the open border in May.

Schra'dera. Named in honor of *H. A. Schrader*, a German botanist, 1767–1836. Nat. Ord. *Rubiaceæ*.

A genus of glabrous shrubs, with thick-rooting branches, natives of Brazil, Guiana and the West Indies. *S. cephalotes*, the only species introduced, produces its white flowers in compact, globose, terminal heads, and thrives best in a compost of sandy peat and loam. It was introduced from Jamaica in 1820, and is propagated by cuttings in heat. Syns. *Fuchsia* (of Schwartz) and *Urceolaria*.

Schra'nkia. Sensitive Brier. In honor of *Francis Paula von Schrank*, a famous German botanist, and author of many botanical works. Nat. Ord. *Leguminosæ*.

A small genus of green-house, herbaceous perennials, common from Virginia southward. The flowers are small, and not unlike those of the *Mimosa*. These plants are very interesting on account of their leaves, which, like those of the Sensitive Plant, fall at the slightest touch. A few of the species are under cultivation in botanical collections.

Schube'rtia. Named after *M. Schubert*, a Polish botanist. Nat. Ord. *Asclepiadaceæ*.

A small genus of hairy, milky, twining shrubs from South America, closely allied to *Physianthus*. The leaves are opposite, and the flowers, produced in handsome umbels, are cream-colored and white. They are funnel-shaped, large and fleshy, and remarkable for their fragrance. They require to be grown in a warm house, in well-drained pots, and are propagated by cuttings.

Sciado'calyx. Derivation of name not given. Nat. Ord. *Gesneraceæ*.

S. Warscewiczii, the only known species, was formerly known as *Gesnera Regeliana*. It is a very ornamental, green-house plant, a native of New Grenada, and conspicuous for its bright pinkish-scarlet flowers, which are produced freely during the winter. Like all the plants of this natural order, it requires a warm house, plenty of moisture, and partial

shade to grow it to perfection. It is increased by cuttings or from seeds. This genus is now placed by some authorities under *Isoloma*.

Sciadophy'llum. From *skiados*, a shade or canopy, and *phyllon*, a leaf; the leaves are large and consequently afford much shade. Nat. Ord. *Araliaceæ*.

A genus of trees or shrubs, natives of tropical America and Asia. They are worthy of cultivation on account of their fine foliage. Increased readily by cuttings in heat, or by root cuttings. Syn. *Actinophyllum*.

Sciado'pitys. Umbrella Pine. From *Skyas*, a parasol, and *pitys*, a Fir-tree; referring to the spreading whorls of the leaves. Nat. Ord. *Coniferæ*.

A singular genus of *Coniferæ* peculiar to Japan, and closely allied to the *Sequoia*. *S. verticillata*, a recently introduced species, has been cultivated from time immemorial by the Japanese around their temples. The trunk is erect, from a hundred to a hundred and fifty feet high, and of pyramidal habit; the branches verticillate, the leaves are from two to four inches long, and about a sixth of an inch broad, in whorled clusters, which gives it a very singular and beautiful appearance.

Sci'lla. Squill. From *skyllo*, to injure; the bulbs of some of the species are said to be poisonous. Nat. Ord. *Liliaceæ*.

An extensive genus of very pretty bulbous plants, nearly all of which are hardy, and very desirable on account of their early habit of flowering. They should be planted in October, either in the open ground or in pots. They prefer a light, rich soil. Among the more desirable species are *S. campanulata* (syn. *S. Hispanica*), a native of Spain, with beautiful blue flowers, of which there are varieties with white and pink flowers; *S. amœna*, with blue flowers, from the Levant, a very early flowering species; *S. bifolia*, with red, blue, or white flowers, and *S. Sibirica*, with intense blue flowers, "a minute gem among the flowers of earliest spring, so beautiful that no rock-work, rock-garden, or garden of any kind can be complete without its striking and peculiar shade of porcelain blue, which quite distinguishes it from the other species. It may be used with good effect as an edging to beds of spring flowers, or to paths in the rock-garden." *S. nutans*, the Blue Bell, Hare Bell, or Wild Hyacinth, with blue, purple, white, or pink flowers, is another beautiful and deservedly admired species. These are all beautiful plants, and well adapted to the open border. They come into flower with the Crocus, and continue in bloom much longer. They may remain undisturbed where planted for a number of years, as crowding from their natural increase does not seem to injure them. *S. Peruviana* is one of the best for pot culture. It is a native of Italy and Spain, and not of Peru, as is generally supposed, and as its name would imply. Its flowers are dark-blue, produced in long racemes. *S. ciliaris*, is also desirable for growing in pots. The last two are not hardy. All the species are well worth a place in the garden or green-house, and are propagated by offsets.

Scinda'psus. From *skindapsos*, an ivy-like climber. Nat. Ord. *Aroideæ*.

A genus of climbing, herbaceous plants, natives of tropical Asia, the Indian Archipelago,

New Guinea, and the Fiji Islands. They have perforated or pinnated leaves on long, channeled stalks. The species are cultivated in their native countries for their fruit, which is considered to have powerful medicinal properties. Several of the species are to be found in collections of plants with ornamental foliage. *S. aryræus*, a comparatively late introduction from the East Indies, has ovate, acuminate leaves, very silvery and glossy on the surface. It is an excellent subject for covering bare walls in the plant-stove, the trunks of tree Ferns, etc. They are all propagated by cuttings, and are mostly known under the name *Pothos*. Syns. *Pythos*, and *Raphidophora*.

Scion or **Cion.** A cutting or twig intended for a graft.

Sci'rpus. Club Grass or Rush. From the Celtic, *cirs*, Rushes. Nat. Ord. *Cyperaceæ*.

An extensive genus of sedge grasses having a wide geographical range. Some of the species furnish considerable pasture for cattle in the salt marshes of Europe, as well as this country. *S. tuberosa*, is grown in China for its esculent roots. *S. Holoschœnus variegatus*, is a very ornamental hardy species, the erect terete stems being banded with alternate zones of white and green. *S. Tabernæmontani zebrina*, the Banded Rush, is a beautifully variegated species introduced by Mr. Thomas Hogg from Japan. It is a plant of singular beauty, the variegation, like that of *Eulalia zebrina*, instead of running lengthwise, runs at right angles to the stem; or, in other words, the variegation is horizontal instead of vertical. A group of the stems suggests that of a cluster of porcupine quills. *S. punyens* is common throughout the United States in swampy meadows and muddy margins of rivers, and is the species chiefly used in this country in making the seats of rush-bottomed chairs. *S. lacustris*, the Bulrush, is extensively used for the same and similar purposes in most parts of Europe. *S. riparius*, is now the recognized name of *Isolepis gracilis*, a favorite plant for basket work and green-house decoration.

Scitami'neæ. A large natural order of perennial herbs, almost entirely tropical, including many plants of considerable size, and all remarkable for their leaves, which are often large, the petiole usually forming a sheath, the blade being sessile or petiolate above the sheath. Arrow-root and Ginger are derived from the rhizomes of *Maranta arundinacea* and *Zingiber officinalis*, respectively. The fruits of *Amomum*, called Cardamons, are esteemed for their stomachic qualities. The well-known Plantain and Banana, *Musa sapientum* and *M. paradisiaca*, also belong to this genus, with several other species of great economic value. Bentham and Hooker regard *Cannæ*, *Marantæ*, *Museæ*, and *Zingibereæ* as tribes of *Scitamineæ*. *Alpinia*, *Canna*, *Curcuma*, *Maranta*, and *Musa* are good representatives of the order.

Sclarea. A genus now included under *Salvia* as *S. Sclarea*.

Sclerotha'mnus. From *skleros*, hard, and *thamnos*, a shrub; alluding to the rigid aspect of the bush. Nat. Ord. *Leguminosæ*.

S. microphyllus, the only described species, is a small, much-branched, wiry-stemmed, evergreen, ornamental shrub from western Australia, closely allied to *Pultenæa*. The specific name, *microphyllus*, alludes to the minute heath-like leaves, which are closely set and bear in their axils the solitary pale-yellow flowers. It is now placed by Bentham and Hooker with *Eutaxia*, under the name of *E. Empetrifolia*.

Scobiform. Resembling Sawdust.

Scoke Berry. A common name for *Phytolacca decandra*.

Scolope'ndrium. Hart's Tongue. From *Scolopendria*, a centipede; the appearance of the seed or spore-cases. Nat. Ord. *Polypodiaceæ*.

A small genus of interesting green-house or hardy Ferns, found generally in temperate and tropical regions. *S. vulgare*, the common Hart's Tongue, Burnt-weed, Christ's-hair, etc., has flaccid, bright green fronds, six to eighteen inches long, with undulated margins. Many varieties of this, one of the most common of British Ferns, are in cultivation, and present a wonderful series of variations from the normal state of the plant. This species is occasionally found in central New York and some other localities in this country, but it is quite rare. The well-known Walking Fern, *Camptosorus rhizophyllum*, is placed under this genus by some botanists. They are generally found on shady limestone rocks or cliffs, and, when cultivated, require a moist, somewhat shaded situation. Many of the varieties make interesting pot-plants.

Sco'lymus. Golden Thistle. From *skolos*, a thorn; the plants are spiny. Nat. Ord. *Compositæ*.

A genus of hardy, herbaceous plants, common in the south of Europe. *S. Hispanicus*, the Spanish Oyster-Plant, has simple fusiform roots, soft and sweet like Scorzonera, and are by many highly esteemed as a vegetable. The leaves and stalks also abound with a milky juice, and the people of Salamanca eat it in the same manner as Cardoons. The flowers are used to adulterate saffron.

Scopo'lia. Named in honor of *John A. Scopoli*, Professor of Natural History at Pavia, 1732–1788. Nat. Ord. *Solanaceæ*.

A genus of spiny shrubs and trees, natives of tropical Asia, Australia, Japan and Russia. *S. carniolica*, and *S. lurida*, are desirable hardy plants on account of their pretty red, yellow and purplish flowers being produced early in spring. They are interesting and curious plants, and are increased by division of the roots.

Scorpion Grass. A popular name for the *Myosotis*.

Scorpion Plant. *Renanthera arachnitis*, and *Genista Scorpius*.

Scorpion Senna. *Coronilla Emerus*.

Scorpiu'rus. Caterpillars. From *scorpios*, a scorpion, and *oura*, a tail; alluding to the twisted form of the legumes. Nat. Ord. *Leguminosæ*.

A small genus of very curious, half-hardy annuals, natives of the Mediterranean regions. The flowers are yellow, pea-shaped; the pods have a fancied resemblance to caterpillars, whence their common name. The pods are

sometimes used to garnish dishes of salads or meats. They may be cultivated in the same manner as Radishes.

Scorpoid, or Scorpoidal. Curved or circinate at the end, like the tail of a scorpion; as the flower of the Heliotrope.

Scorzone'ra. Viper's Grass. From *scurzon*, a viper; supposed remedy for the bite of a viper. Nat. Ord. *Compositæ*.

Handsome, hardy perennials, with purple, pink, or yellow flowers. They are indigenous in the south of Europe and temperate parts of Asia. One of the species, *S. Hispanica*, is grown to some extent as a garden vegetable under the name of Black Oyster Plant. Though a perennial, it should be treated like an annual or biennial, and grown in the same manner as Salsify or Carrots, only the seed should not be sown so early (in the latitude of New York, in the middle of May), as the plants have a tendency to "run up" to seed, which renders the roots unfit for use. There are other species under cultivation in their native countries as articles of food, and held in high esteem.

Scota'nthus. A genus of *Cucurbitaceæ*, consisting of three or four Asiatic herbs, which are procumbent, and have a musky odor. The leaves are roundish, kidney-shaped; flowers large and white, and are succeeded by small, red, berry-like, ribbed fruit. Some of the species are grown as ornamental climbers.

Scotch Broom. A popular name of *Cytisus Scoparius*.

Scotch Fir. See *Pinus sylvestris*.

Scotch Kale. See *Borecole*.

Scotch Primrose. A common name for *Primula Scotica*.

Scotch Thistle. The species originally intended as the national emblem of Scotland has been the subject of much discussion. Dr. George Johnston, in his "Botany of the Eastern Border," as the result of his inquiries, discards the tale of the bare-footed Dane treading on the Thistle, crying out, and thus alarming the sleeping Scottish Army (see *Onopordon*); the historical evidence being that the Thistle was first used as the badge of Scotland by James IV., on the occasion of his marriage with Margaret Tudor, daughter of the English King Henry VII. James V., placed it on his coins (1514–1542), and it is also represented on those of James VI. (1599). Dr. Johnston thus sums up his views on the subject: "This evidence (from history, and the Thistle, as depicted on the coins) seems very much to invalidate the claims of the *Onopordon*, but to greatly strengthen our belief that *Carduus* (*Silybum*) *Marianus* was the chosen emblem of the national pride and character, although it must be admitted that the resemblance between the plant and the picture of the artist is somewhat postulatory. The bold motto, 'Nemo me impune lacessit' was the addition of James VI., and *C. Marianus* is almost the only species that would suggest it; but I suspect that the reason for the preference of *C. Marianus*, 'the Holy Thistle,' 'Our Lady's Thistle,' was the fact of its dedication to the mother of our Saviour, a drop of whose milk (it is said), having fallen on the leaves, imprinted the accident on those white veins which so remarkably distinguish them.

This period was rife in these religious associations and adoptions."

Dr. Johnston was also informed by an old mason, that initiated gardeners well understood the "Milk or Holy Thistle" to be the true plant, and they usually, at their processions, stuck the heads of the latter on the strong spines of the *Onopordon*. Professor Balfour states that it is found naturalized about the ruins of old castles in whose gardens it was formerly cultivated.

Mr. J. Smith, ex-Curator of Kew Gardens, England, some years ago in reply to an inquiry, wrote as follows: "In preparing 'Domestic Botany' for the press, I deemed it necessary to apply to the Professor of Scottish History in the University of Edinburgh, who said: 'There was nothing in Scottish history to support the legend of the Dane and the Thistle;' and, with regard to *Onopordon Acanthium*, although it has been naturalized, it is nevertheless rare in Scotland. It is generally cultivated as a curiosity in gardens, where it grows six to eight feet in height, and its numerous hoary branches, terminated by heads of lilac flowers, make it a plant of special note. *Cnicus acaulis*, which name it has obtained by its flower-heads growing close to the ground, is also known to me as the 'Scotch Thistle,' and, having sharp spines, it would readily make those who trod upon it, not well shod, cry out, as is said to have been done by the Danish soldiers."

Mr. Dovaston, in a communication to "Leighton's Flora of Shropshire," states that in a tour of Scotland he asked many persons what was the Scotch Thistle? and found almost as many different opinions, and thus sums up the matter: "For our own part, we do not believe that any particular species of the plant was meant, the leading idea being the self-defending power of the Thistle, as emblematical of the determination of Scotland, though poor, to submit to no injury or offence without retaliation."

Sco'ttia. Named in honor of *R. Scott, M. D.*, once Professor of Botany in Dublin. Nat. Ord. *Leguminosæ*.

The only described species, *S. dentata* and *S. angustifolia*, are branching, diffuse bushes, with slender stems and opposite, heart-shaped, toothed leaves. The flowers are brick-red, tinged with green, and nearly an inch long, sessile and solitary in the leaf axils. This genus is now included by Bentham and Hooker under *Bossiæa*.

Screens. Fast growing trees, when planted in a belt or shrubbery, to afford shelter from an unfavorable or exposed quarter, are termed a Screen. Gardens on the sea-coast invariably require shelter from the wind and salt spray, and this is generally provided for by planting a belt of trees or shrubs that succeed in such a situation (see Sea-side Trees and Plants). The term also denotes any thing grown or erected to hide an unsightly or undesirable object from any particular point, such as from the windows of the house or the principal walks of the gardens or grounds. This may be done effectually by groups of various evergreen trees and shrubs, to break up the uniformity, or, if only to a moderate height, by lattice or rustic-work, with various creepers or climbing plants trained upon it. Special

preparations, however, have generally to be made to suit peculiar local requirements as to their designs and location.

Screw Pine. See *Pandanus utilis.*

Screw Tree. A popular name for *Helicteres Isora*, a native of India, Australia, etc., and so called from the screw-shaped carpels.

Scrobiculate. Pitted; excavated into shallow pits.

Scrophula'ria. So named by Linnæus, from its supposed use in the cure of scrofula. Nat. Ord. *Scrophulariaceæ.*

A large genus of mostly hardy, annual, biennial or perennial plants, broadly dispersed over the extra-tropical regions of the northern hemisphere. None of the species are of any horticultural interest.

Scrophularia'ceæ. A large, natural order of herbs, or rarely shrubs, found in all climates, but mostly in temperate regions. The order is a most interesting and important one, contributing as it does so many beautiful plants to our gardens. Many of the genera are of medicinal value, chief amongst which is the *Digitalis.* According to Bentham and Hooker, who have divided the order into twelve tribes or sub-orders, it embraces one hundred and fifty-seven genera, and nearly nineteen hundred species. The following are well-known examples: *Antirrhinum, Digitalis, Mimulus, Gerardia, Euphrasia, Calceolaria* and *Pentstemon.*

Scrotiform. Pouch-like.

Scrub Oak. See *Quercus.*

Scurfy Pea. The common name at the Cape of Good Hope for the genus *Psoralea.*

Scurvy Grass. The popular name for *Cochlearia officinalis.*

Scutate, Scutiform. Having the form of a small round buckler.

Scutch Grass. See *Cynodon.*

Scutella'ria. Skull-cap. From *scutella*, a little saucer; alluding to the form of the calyx. Nat. Ord. *Labiatæ.*

An extensive genus of herbaceous perennials, many of which are indigenous to, and common throughout the United States. A few of the species are suitable for edgings to flower-beds. The hardy kinds have their flowers for the most part blue, and are quite showy. Among the tender or green-house species, *S. Mocciana* is bright scarlet and exceedingly handsome, though often affected with rust. *S. pulchella*, another green-house variety, is crimson. Propagated by cuttings.

Scutelliform. Platter-shaped.

Scutica'ria. From *scutica*, a whip; leaves round as a whipcord. Nat. Ord. *Orchidaceæ.*

S. Steelii, one of the best known species of this genus, is an epiphytal Orchid from Demerara, with long, thong-like, pendulous leaves, and large, solitary, dingy-yellow, purple-spotted flowers which grow on very short stalks. There are a few other species of the same general character, but which are rarely cultivated.

Scypha'nthus. Cup Flower. From *scyphos*, a cup, and *anthos*, a flower; in reference to the shape of the flower. Nat. Ord. *Loasaceæ.*

A small genus of Chilian and Peruvian plants, allied to Loasa, but entirely devoid of the stinging properties of that genus. *S. volubilis*, introduced from Chili in 1824, but lost to cultivation until its re-introduction in 1880, has large cup-shaped flowers of a beautiful lively yellow tint. It is a very free-growing, annual climber, well adapted for covering trellis work, screens, etc., having also the advantage of giving variety to those generally grown. This plant is also known as *Grammatocarpus volubilis* and *S. grandiflorus.*

Sea Bean. See *Entada*, and *Ormosia.*

Sea Beet. A common name for *Beta maritima.*

Sea Buckthorn. See *Hippophæ rhamnoides.*

Sea Cotton Weed. *Diotis maritima.*

Sea Daffodil. See *Pancratium.*

Sea Eryngo. See *Eryngium maritimum.*

Seafo'rthia. Named after *Francis Lord Seaforth*, a patron of botany. Nat. Ord. *Palmaceæ.*

S. elegans, the only known species, is a native of Australia, and one of the most beautiful of the Palm family. The plant attains a height of thirty feet, with leaves from two to ten feet in length. "The whole plant is perfectly smooth, leaves drooping and feather-like, and is one of the finest subjects in cultivation for the conservatory, green-house, or sub-tropical garden. It may be placed in the open air from the first of June until the first of October." It can be kept in the conservatory or ordinary green-house during winter, and is of rapid growth. Plants one year from seed, when well grown, attain a height of three feet, and are propagated by seeds only. Known also as *Ptychosperma Cunninghamiana.* Introduced in 1822. *S. coronata, S. Kuhlii* and *S. malaiana* are garden names for *Pinanga coronata, P. Kuhlii* and *P. malaiana*, respectively.

Sea Heath. See *Frankenia.*

Sea Holly. See *Eryngium.*

Sea Island Cotton. See *Gossypium.*

Sea-Kale. *Crambe maritima.* Sea-Kale is only cultivated as yet in the United States by private gentlemen employing gardeners, and is very rarely seen in our markets. Still, there is no reason why it may not be cultivated here equally as well as in Europe, as it grows quite as freely during our summer months here as there; and, being perfectly hardy, it can be got into condition to blanch—which is the only way in which it is used—the first season, if the following plain directions are strictly followed: Prepare the ground exactly as if for a Cabbage or Cauliflower crop, for it is a plant of the same family, and requires very similar treatment. As early as the ground is dry enough to work in spring, after having well leveled and raked the soil, strike out lines three feet apart, and of any length required, and at these lines draw shallow drills, two or three inches deep. In these drills sow the Sea-Kale seed about as thick as Turnip seed; say one ounce to every hundred and fifty feet of drill. After sowing, and before covering, tread the seed in the drill with the foot, and then cover and level with the rake. After the plants are up and show the rough leaf, thin out to eight or nine inches apart, and keep cultivating, so as to encourage the best growth possible during the summer. The plants will have completed their growth by November, when the leaves will begin to

wither and dry off, as Rhubarb or Asparagus does. When the leaves have become completely dried, it is well to cover with two or three inches of leaves, to prevent their being frozen hard. About the first of December or first of January, the blanching or forcing process may be begun. To do this, horse manure and leaves must be got together in quantities sufficient to heat, and enough to cover the Sea-Kale to be forced, to a depth of three or four feet; but, preparatory to placing this hot-bed over them, boxes one foot wide and one and a half to two feet high should be placed along the rows of the Sea-Kale, so that the manure is kept off them. Into these boxes the tender white shoots of the Sea-Kale will be forced up and protected from the manure; or, if the expense of boxes is not advisable, strong bush stakes, such as are used for staking Peas, may be used; in fact, anything that is strong enough to prevent the hot-bed pressing against and impeding the growth of the plants. The hot-bed of three or four feet high, placed over the Sea-Kale beds in December or January, will produce the Sea-Kale in the proper blanched condition in from ten to twelve weeks. If not wanted early, it may be blanched by covering with boxes, inverted flower-pots, leaves, or anything that will exclude the light, placed over the plants in spring at the time they start to grow. It is also easily forced during winter in the green-house or in houses devoted to the forcing of vegetables, etc. (see Crambe and "Forcing Fruits, Vegetables," etc.). The young shoots, when cooked, have a flavor something between Asparagus and Cauliflower, and in England they are much preferred to either.

Sea Lavender. A popular name for various species of *Statice.*

Sea-Leaf. *Bryophyllum calycinum.*

Seal-Flower. A common name of *Dicentra spectabilis.*

Sea Milkwort. See *Glaux maritima.*

Sea Pink. *Armeria maritima.*

Sea Purslane. See Purslane.

Sea Reed. *Psamma arenaria.*

Sea-Side Oat. The genus *Uniola.*

Sea-Side Poppy. A common name for *Glaucium flavum.*

Sea-Side Trees and Plants. As seaside residences are now so numerous, and most of them have a garden and pleasure-ground attached, it may be of service to notice some of the trees and shrubs best suited for protecting and rendering them attractive. Grigor, in his "Arboriculture," says: "The best sheltering nurses amongst deciduous trees are the Sallow, Alder, Osier and Birch, and among evergreens the Scotch Pine; but as these "nurses," as they are termed, would be gladly accepted in many instances as permanent occupants, I would earnestly recommend them as particularly fitted for such situations." In addition to these, the following will be found of excellent service: Tamarix Gallica, a most hardy and valuable plant for forming screens; Beech, Hornbeam, Ailantus, several of our native Thorns (*Crataegus*), Hazels, Altheas, the Sea Buckthorn (*Hippophæ*), the Groundsel Tree (*Baccharis*), the Witch or Wych Hazel (*Hamemalis*), Norway and other Maples, the Californian and European Privet (*Ligustrum*), the Box Thorn (*Lycium Europœum*) Myrica, various Elms, Willows and Oaks, White Poplar, *Pyrus aucuparia,* and other species. the Black Haw (*Viburnum prunifolium*), Elder, etc. Many shrubs, such as Weigelias, Ghent Azaleas, Berberis, Mahonia, Ceanothus, Japan Quince, Forsythia, the Oak-leaved Hydrangea (*Hydrangea quercifolia*), etc., will be found very serviceable, especially if partially sheltered. Of evergreens the most useful are the White Spruce (*Abies alba*), Red Cedar, White, Austrian and Scotch Pines, Pinus Cembra, Rhododendrons, Arbor-vitæs, and Retinosporas.

Sea Star-wort. A common name for *Aster Tripolium.*

Sea Thrift. *Statice Limonium.*

Sea Weed. A general name for the marine *Algæ.*

Sea Weed. Glazier's. *Zostera Mediterranea.*

Sea Weed. Gulf. *Sargassum bacciferum.*

Sebæ'a. Named after Albert Seba, 1665-1736, a botanical author of Amsterdam.

A genus of *Gentianaceæ,* natives of the Cape of Good Hope and of New South Wales. They are erect annual herbs, with numerous whitish or yellow flowers, borne generally in branching corymbose cymes. The species in cultivation are elegant plants, and can be easily raised from seed in a green-house or hot-bed, and planted out for summer blooming.

Seca'le. Rye. An ancient name, said to be derived from *seco,* to cut. Nat. Ord. *Gramineæ.*

A genus of grasses allied to Wheat and Barley. *S. cereale* is the well-known grain, Rye. Its native country, as in the case of the other most important cereals, is somewhat doubtful, but it is said to be found wild in the desert region near the Caspian Sea and on the highest mountains of the Crimea. It has long been cultivated as a cereal plant in Europe and Asia, and it is of considerable importance in the grain markets of this country. Its cultivation does not extend as far north as that of Barley, but it grows in regions too cold for Wheat, and on soils too poor and sandy for any other grain. It will, however, thrive well in a very hot climate, always succeeding best in a light sandy soil. Of this species there are two prominent varieties, known to farmers as Winter and Spring Rye: the difference is due to cultivation mainly. The variety most commonly cultivated is known as Winter Rye; and this is to be preferred, whether it is sown for grain or the straw. Its characters as a variety are so little fixed that it may be sown at almost any season of the year, with the hope of getting a crop in the proper season for it, either of grain or green fodder. It is far less sensitive than Wheat to the cold of winter, while its vegetation is more rapid, so that in high northern latitudes it is often a more important crop.

Secamo'ne. Altered from *Squamona,* the Arabic name of *S. Ægyptica.* Nat. Ord. *Asclepiadaceæ.*

A genus containing nearly thirty species of climbing or decumbent shrubs, natives of South Africa, India and Australia. Three

SCYPANTHUS ELEGANS.

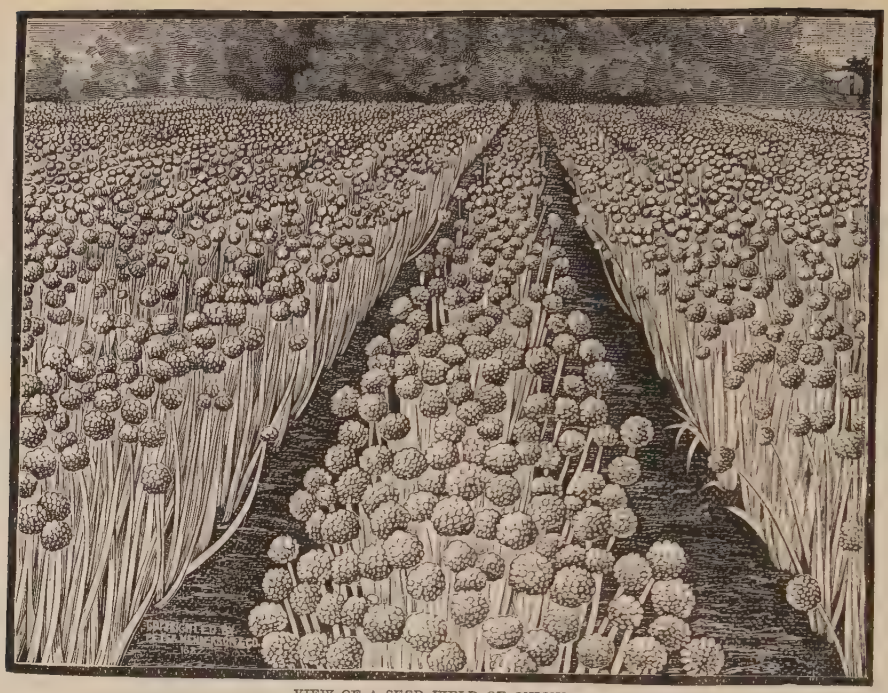
SEDUM CARNEUM VARIEGATUM.

SEDUM CŒRULEUM.

SEAFORTHIA ELEGANS.

SEDUM SIEBOLDI.

SESBANIA MACROCARPA.



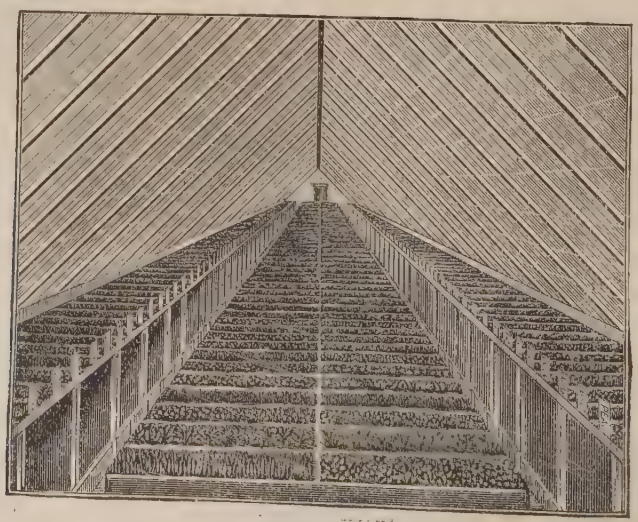
VIEW OF A SEED FIELD OF ONIONS.

SEED BOXES.

NO. 1.—SHOWING SEED AS JUST SOWN IN SHALLOW BOXES (2 INCHES DEEP).

NO. 2.—SHOWS SEEDS, SUCH AS PANSIES, 3 OR 4 WEEKS AFTER SOWING.

NO. 3.—SHOWS THE PLANTS TRANSPLANTED THE SAME SHALLOW BOXES BEING USED IN EACH CASE.



SEED-TESTING GREENHOUSE.

SEC

species have been introduced, but are probably lost to cultivation. Some of the species contain an acrid principle, which makes them useful as medicines. Smyrna Scammony is obtained from an Egyptian species.

Se'cateur. Small hand-pruning shears, formerly used exclusively in France, but now manufactured here and in general use. They can be used much more expeditiously and to better advantage than a pruning knife for shortening strong shoots on trees, pruning roses, shrubs, etc.

Se'chium. Choko. From *sekiso*, to fatten; the fruit serves to fatten hogs in the mountains and inland parts of Jamaica, where the plant is much cultivated. Nat. Ord. *Cucurbitaceæ*.

S. edule, the type of this genus, is an annual, a native of the West Indies, where it is extensively grown for its fruit, which is considered extremely wholesome, and is commonly used as an article of food by all classes. The plant is climbing, supporting itself by tendrils. The fruit is about four inches long, in substance between succulent and fleshy, and is exceedingly nutritious. Besides its utility as food for man, it is much used for fattening animals. The roots are large and in substance resemble the *Yam;* they are also used as an article of food.

Secretion. Any organic but unorganized substance produced in the interior of plants.

Section. A term generally applied in classification to a division in the arrangement of species, genera, or other groups.

Secund. Having all the flowers, leaves, or other organs, turned to one side.

Securida'ca. From *securis*, a hatchet; alluding to the form of the wing at the end of the pod. Nat. Ord. *Polygalaceæ*.

A genus of trailing shrubs, mostly natives of tropical America, Asia and Africa. The fruits, which are remarkable in the family, are very much like one of the two-winged carpels which make up the fruit of a Maple. The Buaze Fibre-plant, *S. longipedunculata*, spoken of by Dr. Livingston in his "Travels," belongs here, and has been described and figured in the botany of "Peters' Travels in Mozambique" by Dr. Klotzsch, under the name of *Lophostylis pallida*. The fibre resembles flax, and some of it brought home by Dr. Livingston, when tested, was pronounced equal to flax, worth $250 to $300 per ton. Many of the South American species ramble to a great height over other trees, and are beautiful objects when in flower.

Securi'gera. From *securis*, a hatchet, and *gero*, to bear; referring to the shape of the pods. Nat. Ord. *Leguminosæ*.

S. Coronilla, Axe-weed or Hatchet Vetch, the only species, is a native of the south of Europe. It is a hardy annual, bearing peduncles of nodding yellow flowers, and is of easy cultivation, only requiring to be sown in the the open border in spring.

Securi'nega. From *securis*, a hatchet, and *nega*, to refuse; in reference to the extreme hardness of the wood. Nat. Ord. *Euphorbiaceæ*.

A genus of about eight species, only one of which calls for notice here. *S. durissima*, the Otaheite Myrtle, the "Bois dur" of the colonists, was introduced from Mauritius in 1793.

SEE

Noted principally for its exceedingly hard wood, it is seldom found outside of a botanic garden, and is readily propagated by cuttings of the half-ripened wood.

Sedges. A common name for the *Cyperaceæ*, of which *Carex* is the principal genus.

Sedum. Stonecrop. From *sedere*, to sit; the plants are found growing upon stones, rocks, walls and roofs of houses. Nat. Ord. *Crassulaceæ*.

A very extensive genus of succulent, annual, hardy, herbaceous, perennial and evergreen plants, common to almost every country and climate. The hardy species of this genus are well adapted for ornamenting rock-work. Some of the species are remarkable for their variegated foliage, of which *S. Sieboldi variegatum* is one of the prettiest. It grows about one foot high, the leaves being blotched with yellow. It is hardy, and is a variety of *S. Sieboldi*, a native of Japan. There are a number of beautiful species indigenous to this country. All the species are of the easiest culture, and may be grown from cuttings put in the place where they are to grow, or by division. Nearly all the species are worthy of a place in the garden. *S. Telephium* is the common Live-forever of our gardens, a native of Europe, but has escaped from cultivation and become naturalized in many localities. Most of the species are, from their succulent character and resisting drought, well adapted for vases, or for covering rough walls or rocks. *S. acre*, a beautiful yellow-flowered variety, is a well-known type of the genus, and its variety *S. acre variegatum* is even more beautiful. *S. albida* has beautiful white flowers early in spring. Propagated by cuttings or division.

Seed Boxes. See "Propagation by Seeds."

Seed Drill. This is the implement used in sowing field crops of Onions, Carrots, Turnips, etc. It can be adjusted so as to sow all sizes of seeds. To use the seed drill successfully, the ground must be soft and smooth. It is never safe to use it in harsh, clayey or stony soils. By its use only about one-fourth the quantity of seed is required than when sown by hand; and the plants coming up in less numbers, they are easier thinned out. It is rarely used in small gardens.

Seeds. GEOGRAPHICAL DISTRIBUTION OF THE LOCALITIES WHERE THEY ARE GROWN IN THE UNITED STATES. The subjoined article from the Report of the Department of Agriculture at Washington for 1878 was written by us in that year, and we believe it will be found to be of sufficient interest and importance to warrant a place here. It is entitled, "LOCALITIES BEST SUITED FOR MATURING SEED," and is as follows:

Seed-growing is now getting to be one of the industries of the United States, as it has long been of Europe. Our great variety of latitude, soil and climate is such that in many things we are now supplying Europe with that which a few years ago we imported; and I think it is safe to predict that in a majority of the seeds of the garden the balance of trade will ultimately be in our favor, as it is now with a majority of the seeds of the farm. I say a majority, for as seed-growing is a matter of latitude, there always will be some

SEE

kinds that will attain perfection better in Europe than America, particularly such seeds as require a low temperature for perfect development. Hence, whenever a full variety of seeds is attempted to be grown in any one district, either here or in Europe, some crops will be a complete failure and many partially so, for we might as well attempt to "acclimatize" the white bear of Iceland to the jungles of Africa, or the Bengal tiger to the forests of Norway, as to perfectly develop the seed of Oats in our Southern States, or the seed of Maize in northern Europe. Still, we find these attempts are made, and will be made by inexperienced cultivators of seeds, resulting not only in ultimate failure to the grower, but also seriously injuring those to whom such undeveloped seeds are sold. When seeds are grown in a latitude unsuited to their development, they will invariably perpetuate weak progeny. A marked case in point is the Oat, a grain requiring a low temperature for perfect development; hence the superiority of the Scotch or Irish Oats over those grown in the hot and dry summers of the United States. The average weight per bushel of Scotch Oats may be given as forty-four pounds, while the average of Oats grown in the United States is about thirty-two pounds per bushel; yet we find that Scotch Oats weighing forty-four pounds per bushel, when sown in the Middle States under favorable conditions, deteriorate to forty pounds per bushel during the first season from the imported seed; that product being again sown, they still further deteriorate to thirty-five or thirty-six pounds per bushel, which again being sown the third year, falls down to the normal condition of the American Oats, say thirty or thirty-two pounds per bushel. These facts suggest the query whether it would not pay our farmers to import their seed Oats in order to get this improved quality. In my opinion there is no other way to do it; for no matter how carefully the selection of seeds is made, deterioration will take place when the crop is grown under circumstances uncongenial to it. A lifetime spent in the practical study of horticulture, which is close akin to agriculture, has forced me to the conclusion that there is no such thing as acclimatization of plants. The Maize of the American continent resists all attempts to bring the crop to full maturity in the climate of Great Britain, while the Oat (*Avena sativa*) gives comparatively abortive results when grown in our semi-tropical summers. Hundreds of instances in families of plants grown for their fruits, flowers, or seeds, could be given to show that, whenever any attempt is made to change characteristics incident to their natural origin, no perceptible advance is ever made. We all know that in attempts to acclimatize the Fig, the Olive, and the Orange tree in the open air in any locality where the thermometer falls below zero, the complete destruction of the trees would be the result, unless artificially protected. This result is marked and complete, and is universally known, even to such as have not made these matters a special study. But every cultivator of large experience knows that the same rule runs through all grades of vegetation, and that the hardening or acclimatizing of plants has not advanced, as far as the records go.

SEE

We remember when the Chinese *Wistaria* was grown only in our green-houses; now it is seen everywhere as a hardy vine; but it was in ignorance of its hardy nature that it was ever protected, for it was equally as "hardy" the day of its first introduction as it is to-day. The garden and farm seeds in general use in the United States, I have said, are mainly grown here, though some are better grown in other countries. I will briefly state the localities so far found to be best suited to the greatest development of the different kinds, and the sources from which seedsmen draw their supplies. I am indebted for much information on this subject to Mr. William Meggat, seed-grower, of Hartford, Conn., who has given this subject special study for the past twenty years.

ASPARAGUS is grown in New Jersey, on Long Island, and in other portions of New York, and probably other parts of the Northern and Middle States.

BEETS are grown in Central New York, Pennsylvania and Connecticut. The Mangel and Sugar Beets are as yet mostly imported.

BEANS (Bush) are mostly grown in New York State, though Michigan, Wisconsin and Pennsylvania are beginning to grow considerable quantities.

BEANS (Pole) are grown in Connecticut, New Jersey, Pennsylvania, Maryland and Delaware, and States further south.

The CABBAGE, one of our most important crops, gives its best development near the sea-coast. That grown on rich soils inland is never so satisfactory. Hence our market gardeners and farmers in the vicinity of New York, from experience dearly bought, prefer their Cabbage seed for an early crop to be always grown on the easterly side of Long Island, on the Atlantic coast, to that from any other source. There is considerable grown in Pennsylvania, New Jersey, Connecticut and Rhode Island, but such has never come to be held in any favor by our market gardeners in the vicinity of New York, who, perhaps, are as critical in such matters as anywhere in the world. But little Cabbage seed is now imported, though it is sold much cheaper in Europe than here; but the crop is too important to risk any consideration of price, for we find that what are grown as the favorite varieties in Europe are not to be compared, for our purpose, with those we have ourselves originated here.

CAULIFLOWER SEED is all imported from Europe. All attempts that we have made to grow the seed here have proved nearly abortive. It requires a cool and rather moist climate, and even under the best conditions seeds sparingly. It has recently been tried in California, but, so far, with only partial success.

CELERY is another important crop of which the seed is raised almost exclusively here; at least that in use among commercial gardeners, many of them growing a few pounds for their own use annually at five times the cost they could buy imported seed for; the danger being so great of getting a spurious sort that they prefer doing so rather than run the risk. Now, however, as the varieties best suited for our climate become known, it is largely grown by our regular seed-growers in New York, Pennsylvania, Connecticut and New Jersey.

SEE

CUCUMBERS are now grown entirely here, except a few of the fancy sorts. The best seed is grown on the maiden soil of the prairies; and though still grown to some extent in Pennsylvania, Connecticut, New Jersey and New York; Illinois and Michigan will, in all probability, eventually be the section used to grow all species of the so-called "vine" family of vegetables.

The CARROT is grown almost exclusively in the States of New York, Rhode Island, Massachusetts and Connecticut.

The EGG-PLANT as yet, is mainly grown in Pennsylvania, New Jersey, New York and Maryland, but, being a plant of tropical origin, the seeds, no doubt, would be better matured if grown further south.

The ENDIVE is all imported from Germany and France.

The LEEK is partly grown here in the Eastern and Middle States, though some is also imported. The American grown is found to have the greater vitality.

LETTUCE, when grown in the Atlantic States, matures best in the vicinity of our large lakes, in New York, Michigan, Wisconsin and Illinois. California, however, is better fitted for seeding Lettuce than any of the Atlantic States, and large quantities are already being grown there. Quantities are yet imported, but in this case, as in the case of Cabbage and Celery, market gardeners rarely risk imported Lettuce until first proving the variety to be correct.

MELON (Nutmeg) is grown the same as the Cucumber.

MELON (Water) is grown the same as the Cucumber, though rather more of it is grown in States farther south.

OKRA is of tropical origin, and the seed is best grown in the Southern States.

ONION is one of the most important of all our vegetable crops grown from seed, and as it rapidly loses its vitality, being of little value the second year, it is now almost entirely grown here. The seed from which to grow Onions of a marketable size is raised mainly in Connecticut, Massachusetts, Rhode Island and Michigan; while that raised from which to grow Onion sets is mostly grown in Pennsylvania and New Jersey. California has begun to grow Onion seed to some extent, but as the quality of the seed greatly determines the weight of the crop, confidence is not yet fully established in the seed grown there.

PARSLEY is nearly all imported, as the plant is not quite hardy enough to stand our northern winters, while the hot summer of our Southern States is against its maturing there.

The PARSNIP is grown mainly in Pennsylvania, New York, Connecticut and Rhode Island.

PEAS, a most important crop, are mainly grown in Canada and in New York State, on the immediate line of Lake Ontario. A few of the newer sorts are imported from Britain, but the great bulk used are grown as stated above.

PEPPER is grown mainly in New Jersey, Pennsylvania and New York, but may be grown almost anywhere.

RADISH is nearly all imported, or should be; for when grown in this climate, like Oats, it degenerates very fast.

SEE

SALSIFY can be grown anywhere where Lettuce is grown, but as there is no danger of mixing varieties, it is cheaper to import it from France.

SPINACH is nearly all imported from England, France, or Germany, as it cannot be so profitably grown here, for the same reason that we cannot profitably grow Parsley, mainly because our winters in the north are often such as to kill off the plants, while in the southern section the summers are too hot for maturing the seed.

TOBACCO is grown in Virginia, Connecticut and Kentucky in the United States, and in Cuba and other tropical latitudes. It is sometimes believed to be a peculiarity of Tobacco that location changes the character of the variety. This we are inclined to doubt, and believe that the varieties grown in Cuba, Connecticut and Virginia, are botanically distinct, and are such as have been selected as the kinds best suited to the sections in which they are grown.

TOMATO seeds are mostly grown in New Jersey, Connecticut, Michigan and Illinois; but they may be grown with nearly the same success in almost all the States of the Union.

TURNIP seeds are grown in Pennsylvania, Rhode Island, Connecticut and Michigan. A little is grown in Virginia and Maryland, but it is less popular than that grown farther north; not much is now imported.

PEARL MILLET is now creating a widespread interest. As the plant is tender, we are inclined to think the seeds will be grown exclusively in Florida, Georgia, the Carolinas and other Southern States, as a long season and high temperature are necessary to fully mature the seed, though the plant as a fodder-plant does well in any section where Maize will grow. We find that under the most favorable conditions the seed does not ripen with us in New Jersey.

HUNGARIAN MILLET or Hungarian Grass is entirely different from Pearl Millet, bearing no resemblance to it. The plant is hardy. Seeds are grown in New York, New Jersey and in many of the Western States.

TIMOTHY GRASS is grown largely in Illinois, Wisconsin and New York.

BLUE GRASS is grown in Kentucky, Ohio, and other Western States.

RED TOP is grown in New Jersey, Kentucky, Ohio and Rhode Island.

ORCHARD GRASS is grown in Kentucky, Ohio and the Western States.

RED CLOVER is grown in Michigan, New York, Ohio, etc.

WHITE CLOVER is grown in Wisconsin, Illinois and Ohio, but the greater portion of it is yet imported from Germany and France.

LUCERNE or ALFALFA is grown in California mainly.

These localities are now the principal ones where seeds of commerce are grown; but every year, to some extent, these latitudes are changing, as we find that other latitudes are better suited for special kinds. For example, the long, dry seasons of California are found to mature many kinds of seeds far better than any section yet tried in the Atlantic States, particularly so in many of the more delicate kinds of flower seeds, that are yet nearly exclusively grown in Germany and France, and sold to us at rates of many times

SEE

their weight in gold. Tens of thousands of acres are devoted to the raising of flower seeds in southern Europe, which could probably be far better done in California; but the industry must be one of slow growth, for seeds are different from nearly all other mercantile commodities, inasmuch as no examination can certainly tell whether or not seed will germinate, or, if it does germinate, can it be known whether it is the variety specified until it matures; hence seed merchants dare not purchase from the growers until not only their honesty, but, what is of equal importance, their *knowledge* of the business in which they are engaged is assured.

Seed-sowing. See "Propagation by Seeds."

Seema'nnia. Named after Berthold Seemann, a botanist and traveler, 1825–1871. Nat. Ord. *Gesneraceæ.*

S. sylvatica, the only described species, is a pubescent, stove-house, perennial plant, with a creeping rhizome, closely allied to *Achimenes* and *Isoloma.* It bears bright scarlet flowers on solitary axillary pedicels, and requires the same treatment as *Gesnera.* It was introduced from Peru in 1875.

Segar Plant. See *Cuphea platycentra.*

Segment. One of the divisions into which a leaf or other flat organ may be cut.

Sego. A common name for *Calochortus Nuttallii.*

Segregate. Separated from each other.

Selagina'ceæ. A natural order of small shrubs, or annual or perennial herbs, with alternate leaves, and blue, white, or rarely yellow flowers, in terminal heads or spikes, closely allied to *Verbenaceæ.* There are about a dozen genera, of which *Globularia* is European, *Gymandra* from temperate or northern Asia and northwestern America, and all the others, including *Selago* itself, from southern Africa.

Selagine'lla. A diminutive of *Selago,* an ancient name of a Lycopodium, from which this genus has been separated. Nat. Ord. *Lycopodiaceæ.*

A genus of Club Mosses, formerly included in the genus *Lycopodium,* and differing only by their two-ranked stems and the form of the fruit. Many of the species are very beautiful, and are favorite plants for the fernhouse or Wardian case. *S. lepidophylla* has the fronds curiously curled in and contracted when dry, so as to form a ball somewhat like the Rose of Jericho, but expands again when moistened. It is commonly called the *Resurrection Plant* and is found from Texas to Peru. *S. serpens* (syn. *mutabilis*) has the remarkable property of changing its color during the day; in the morning it is a bright green, but as the day advances it gradually becomes pale, and at night resumes its deeper tint. *S. Kraussiana* is a well-known species most useful for decorative purposes, and is now used in large quantities by florists as a ground-work for elaborate designs of cut flowers, dinner-table decoration, etc. *S. uncinata* (better known as *S. cæsia*) has a beautiful metallic lustre, resembling the tints of a Peacock's feathers. *S. Wildenovii* (syn. *S. cæsia arborea*) has the same beautiful shades of color as the preceding, but is a climbing plant of grand proportions. These two should be grown in a hothouse. The nature of all demands a moist atmosphere and partial shade. *S. atroviridis, S. Braunii, S. caulescens, S. cuspidata, S. erythropus, S. Galeotti, S. hæmatodes, S. lævigata, S. Martensii, S. Poulteri, S. Wallichii,* and a number of other species are well-known green-house or plant-stove decorative plants, and are indispensable in every collection. All the species are readily increased by cuttings, which strike root readily.

SEM

Sela'go. From the Celtic *sel,* sight, and *jach,* salutary; supposed medicinal qualities. Nat. Ord. *Selaginaceæ.*

A very pretty genus of low-growing, hardy, green-house shrubs from the Cape of Good Hope, with beautiful spikes of rose-colored, yellow, violet, or white flowers. They require but little care or attention, flowering freely in early summer, and are propagated by cuttings.

Sele'nia. Probably from *Selene,* the moon; connection not obvious. Nat. Ord. *Cruciferæ.*

A small genus of annual herbs, natives of Texas and Arkansas. *S. aurea* has the habit of Brassica, the stem three-edged, the leaves pinnatifid, and the flowers golden yellow, in terminal racemes. It is well worthy of cultivation, both for the color and odor of the flowers, as well as for the considerable time it remains in blossom. It requires similar treatment to other hardy annuals.

Selenipe'dium. South American Lady's Slipper. From *selenis,* a little crescent, and *pedion,* a slipper; in allusion to the crescentic, slipper-shaped labellum. Nat. Ord. *Orchidaceæ.*

A genus of terrestrial Orchids, differing from *Cypripedium* in having a three-celled and three-furrowed, or three-lobed, ovary. They have been introduced chiefly from the mountainous parts of South America, and require the same general treatment as *Cypripediums,* from which genus they have been removed by Reichenbach.

Self-heal. See *Prunella.*

Seli'num. From *Selinon,* the Greek name for Parsley; applied to this genus on account of the resemblance in the leaves. Nat. Ord. *Umbelliferæ.*

A genus of about twenty-five species of mostly hardy perennial plants, natives of the Northern Hemisphere. The species are of little horticultural interest.

Semeca'rpus. Marking Nut-tree. From *semeion,* a mark, and *karpos,* fruit; the black, acrid juice of the nut is used by the natives for marking cotton cloths. Nat. Ord. *Anacardiaceæ.*

A small genus of East Indian evergreen trees, the unripe fruit of which is employed in making a kind of ink. The hard shell of the fruit contains a corrosive juice, which is employed externally by the natives for sprains and rheumatic affections. When dry it forms a black varnish, much used in India, and, among other purposes, it is employed, mixed with pitch and tar, in the calking of ships. The seeds, called Malacca Beans or Marsh Nuts, are eaten, and are said to stimulate the mental powers and especially the memory.

Semeia'ndra. From *semeion,* a mark, signal, an *aner, andros,* a male; in allusion to the

conspicuous shape of one of the stamens. Nat. Ord. *Onograceæ*.

A small genus of slender, pubescent, greenhouse shrubs, inhabiting the mountains of Mexico. One of the species, *S. grandiflora*, has been introduced, and forms a handsome plant, requiring culture similar to the Fuchsia. It has large, handsome, showy, scarlet flowers, in axillary peduncles; the leaves are ovate, or ovate-lanceolate, tapering below, and acuminate at the apex. It was introduced from Mexico in 1853 and is increased readily by cuttings.

Se'mele. The name of the mother of Bacchus, after whom the genus was named. Nat. Ord. *Liliaceæ*.

S. androgyna, the only described species, is a climbing shrub with scale-like leaves, with cladodia (branches taking the form of leaves), from the side of which the flowers are produced. It thrives in any rich soil and is increased by division of the roots. It was introduced from the Canary Islands in 1713. Syn. *Ruscus androgynus*.

Semi. This term, used in Latin compounds, signifies half; as semi-amplexicaul, half-stem-clasping; semi-hastate, hastate on one side only, etc.

Sempervirens. Evergreen.

Sempervi'vum. Houseleek. From *semper vivo*, to live forever; referring to the tenacity of life of these plants. Nat. Ord. *Crassulaceæ*.

A genus of shrubby, herbaceous, succulent plants, inhabiting the mountains of central and southern Europe, Madeira, Asia Minor, Abyssinia and the western Himalayas, but the most beautiful of which are natives of the Canary Islands. The tender kinds are interesting plants, and deserve a place in the green-house. Many of the hardy kinds are exceedingly pretty when in flower, and some become beautifully tinted in winter when fully exposed to the weather, as they always should be, for they are impatient of covering of any kind. They require very little water, except when about to flower; and they are propagated by cuttings, which must be laid to dry for some days before they are planted. They are very suitable for rock-work, and are occasionally used for "carpet bedding." Young plants are also frequently produced by suckers from the old ones.

Seneca Snake-root. See *Polygala*.

Seneci'llis. A genus of *Compositæ*, now included under *Senecio*. The plant usually cultivated as *S. glauca*, is *Ligularia macrophylla*, which greatly resembles the former but has a different pappus.

Sene'cio. Groundsel. Ragweed. From *senex*, an old man; the receptacle is naked and resembles a bald head. Nat. Ord. *Compositæ*.

This is a large genus, some of which are of an ornamental character, comprising, according to Bentham and Hooker, nearly nine hundred species of annuals, perennials or shrubs, dispersed over the whole globe, but most numerous in temperate regions. *S. elegans*, a native of the Cape of Good Hope, was introduced about 1700, and has long been a favorite in gardens under the name of *Jacobæa*. It is properly an annual, though easily kept as a perennial, and made to assume almost a shrubby appearance. There are several varieties of the species, as the double white, double purple, or double red, all of which are pretty, and useful for their long-continued flowering. *S. pulcher*, introduced from Uruguay in 1872, is a pretty, cobwebby, tomentose, perennial plant, having large, showy, purple flower-heads with a yellow disc. It is increased readily by root cuttings. *S. vulgaris*, the Groundsel of British gardens, is there, one of the most troublesome weeds. It has been introduced here by seeds in the soil of imported plants, but, fortunately, does not increase freely with us. There are several species indigenous to this country, all mere weeds.

Senna. The leaves of *Cassia acutifolia*, *C. angustifolia* and other allied species.

Senna, Bladder. The genus *Colutea*.

Senna, Scorpion. *Coronilla Emerus*.

Sensitive Briar. See *Schrankia uncinata*.

Sensitive Fern. See *Onoclea sensibilis*.

Sensitive Plant. See *Mimosa pudica*.

Sensitive Plant, Wild. *Cassia nictitans*.

Sepal. One of the parts or divisions of the Calyx or outermost whorl of a flower.

Septa. The partitions which divide the interior parts of a fruit.

Se'ptas. From *septem*, seven; the number seven prevailing in the fructification. Nat. Ord. *Crassulaceæ*.

A genus often united with *Crassula*, and containing two species from the Cape of Good Hope, having the habit of some species of Saxifraga. They are herbaceous, and have tuberous roots, simple stems, opposite or verticillate leaves, and white, almost umbellate, flowers. They are readily increased by division of the tubers and should be kept rather dry while dormant.

Septum. A partition.

Sequoi'a. The generic name is a supposed modification of *See-qua-yah*, the name of a celebrated Cherokee chief. Nat. Ord. *Coniferæ*.

The two species that at present constitute this genus are gigantic evergreen trees, natives of California. *S. gigantea* is the far-famed Mammoth Tree, which was discovered by an American hunting party in the Sierra Nevada, Upper California, in 1850. The so-called Mammoth Grove is in Calaveras. This was the first discovery; and, though found in various parts, none have attained the height of those the astonished hunters first beheld. "The tallest tree of the Mammoth Grove, stripped of its bark for the purpose of exhibition, was 337 feet high, and at the base was 90 feet in circumference. The greatest dimensions seem to have been attained by a tree which was found broken at a height of 300 feet, and which measured at that place eighteen feet in diameter. Considering it was one hundred and twelve feet in circumference at the base, and tapered regularly to the point where broken, it is calculated to have been, when in the fullness of its growth, four hundred and fifty feet high. By actual counting of the concentric rings, this tree was found to have been 1,100 years old." *S. sempervirens* is the Redwood of the timber trade, and extends from Upper California to Nutka Sound. It attains gigantic dimensions, being frequently

more than three hundred feet high, and imparts to the woods a peculiar character; as Douglas said, "Something that plainly shows we are not in Europe." This species furnishes most of the lumber used in house-building, cabinet work, and for various other work in which pine is employed east of the Rocky Mountains. These trees have been introduced into our nurseries, and are found to be hardy around New York, though no such extraordinary dimensions are ever likely to be obtained as in their native habitat. Syn. *Wellingtonia.*

Sera'pias. Name derived from the Egyptian God, *Serapis.* Nat. Ord. *Orchidaceæ.*

A small genus of hardy terrestrial Orchids, natives of the Mediterranean region. There are five or six species, all very interesting plants, and generally included in all collections of hardy Orchids.

Sereno'a. Saw Palmetto. Named in honor of *Sereno Watson,* of Cambridge, Mass., a distinguished botanist. Nat. Ord. *Palmaceæ.*

S. serrulata, the only species, is a dwarf, unarmed tufted Palm, a native of the Southern States, and closely allied to Sabal. It is a very handsome species either for the greenhouse or for summer decoration. Syn. *Sabal serrulata.*

Serial or **Seriate.** Disposed in rows or series.

Sericeus. Silky; covered with close, soft, straight pubescence.

Serico'graphis. From *serikos,* silk, and *grapho,* to write. Nat. Ord. *Acanthaceæ.*

This genus consists of a few species of under-shrubs and herbaceous evergreens. *S. Ghiesbreghtiana* is a handsome winter-flowering plant, requiring the same treatment as the *Ruellia.* This genus is now included under *Jacobinia* by some authors.

Seri'nga. A popular name for the *Philadelphus* or Mock Orange.

Seri'ngia. Named in honor of *N. C. Seringe,* Director of the Botanical Garden at Lyons, 1776–1858. Nat. Ord. *Sterculiaceæ.*

S. platyphylla, the only described species, is an interesting, green-house, evergreen shrub, with white flowers in dense terminal cymes. The branches are loosely whitish or rusty tomentose. It was introduced from Australia in 1822, and is propagated by cuttings of the young wood. Syn. *Lasiopetalum arborescens.*

Seri'ssa. A name altered from the old Greek *Seris,* used by Dioscorides. Nat. Ord. *Rubiaceæ.*

S. fœtida, the only species, is a pretty, green-house, branched shrub, with white axillary or terminal flowers. There is a variety with double flowers (a rare occurrence in this order), and another with gold-margined leaves. Propagated by cuttings. A native of India, China, Japan, etc.; sometimes cultivated under the name of *Lycium Japonicum.*

Serotinus. Comparatively late.

Serpent's Beard. *Ophiopogon Japonicus.*

Serpent Withe. A common name for *Aristolochia odoratissima.*

Serradilla. The common name for *Ornithopus sativus,* which see.

Serrate. Having sharp, straight-edged teeth, pointing to the apex. When these teeth are themselves serrate, they are *bi-serrate* or *duplicato-serrate.*

Serra'tula. Saw-wort. From *serrula,* a little saw; alluding to the serrated foliage. Nat. Ord. *Compositæ.*

A large genus of hardy, perennial herbs, natives of Europe, North Africa and Asia, all more or less of a Thistle-like aspect and not suitable for general culture.

Serrulate. Serrate, with very small or fine teeth.

Serru'ria. Named in honor of *Dr. James Serrurier,* Professor of Botany at Utrecht. Nat. Ord. *Proteaceæ.*

A genus of desirable, densely leafy shrubs peculiar to South Africa. Of this showy and desirable genus over fifty species have been described, nearly half of which are in cultivation. They are closely allied to *Protea* and require the same general treatment.

Service Berry. See *Amelanchier.*

Service Tree. See *Pyrus.*

Se'samum. Bene Plant. From *Sesamon,* the old Greek name used by Hippocrates. Nat. Ord. *Pedaliaceæ.*

S. orientale, a native of the East Indies, is the Bene Plant of our gardens and of domestic medicine, being used with excellent results in severe cases of dysentery. It is now grown for that purpose in the vicinity of New York and other large cities. A dozen leaves put in a tumbler of water quickly give out a mucilaginous, starch-like substance, in which condition it can be freely used. Cultivation, the same as for other tender annuals; that is, by sowing in March in a hot-bed, if wanted early, or in the open border in May for general crop. It is a tender annual, with flowers of a whitish color, shaped somewhat like those of the *Foxglove,* and produced in loose terminal spikes. In the Southern States and in Africa this species was, and is yet to some extent, considerably grown for the oil, called Gingelly Oil, the seed yields, which oil will keep many years without acquiring any rancid taste or smell. When first made it is quite heating and is used as a stimulant; but, after two or three years, it becomes quite mild, and is used as a salad oil. The seeds are also used by the negroes for food, which they prepare in various ways. In Japan the oil is used as we use butter in cooking.

Sesba'nia. From *sesban,* the Arabic name of *S. Ægyptiaca.* Nat. Ord. *Leguminosæ.*

A small genus of interesting tropical and sub-tropical annuals, biennials and shrubs, producing fine flowers, mostly yellow, the entire summer. *A. macrocarpa,* a native of Louisiana, is one of the most showy species, and useful for very dry, warm situations.

Se'seli. Meadow Saxifrage. The Greek name of an umbelliferous plant. Nat. Ord. *Umbelliferæ.*

A genus of about forty species, nearly all natives of the north temperate regions. *S. gummiferum,* the only species worthy of attention, is a handsome silvery plant with elegantly divided leaves of a peculiarly pleasing glaucous or almost silvery tone. It is a biennial, and thrives best on a dry, sunny bank, or raised border. It was introduced to cultivation from Tauria in 1804, and is readily increased by seeds.

SES

Sesqui. A prefix, which, used in Latin compounds, signifies one and a half, as Sesquipedalis, one and a half feet.

Sessile. Sitting close upon the body that supports it without any sensible stalk.

Sesu'vium. A small genus of *Ficoideæ*, interesting principally as containing the Samphire or Seaside Purslane of the West Indies (*S. Portulacastrum*), which, with *S. repens*, both found on the sea-shores, are edible and are used as pot herbs, though they have rather a salt taste. One or two of the species are in cultivation.

Seta. A bristle of any kind; a bristle tipped with a gland; a slender prickle.

Seta'ria. Bristly Fox-tail Grass. From *seta*, a bristle; the involucrum is bristly. Nat. Ord. *Graminaceæ*.

An extensive genus of grasses, mostly annuals and of but little interest.

Setigerous. Bearing bristles.

Setose. Bristly; covered with stiff hairs.

Seville Orange or **Bitter Orange.** *Citrus vulgaris.*

Seyme'ria. Named for *Henry Seymer*, an English naturalist. Nat. Ord. *Scrophulariaceæ*.

A genus of annual or perennial herbs, natives principally of northwest America. *S. pectinata* and *S. tenuifolia*, both native annual species, are in cultivation, and are very pretty plants when in flower.

Shad-Bush. See *Amelanchier.*

Shaddock. *Citrus decumana.*

Shading. In this latitude, where the sun's rays are so powerful, shading is imperative for nearly all plants grown under glass during the hot and often dry and sultry summer months. More particularly is this the case with stove and green-house plants, very few of which can be successfully grown under glass without more or less shade. As a permanent shading has the effect of weakening the plants, because they do not get sufficient light in dull weather, a system of fixing thin blinds to rollers which may be drawn up in dull weather is, perhaps, the best method. A great variety of material is procurable for this purpose, and, for a small "lean-to" or span-roofed house, a screen of light canvas, muslin, or "protecting cloth" (which see), arranged on the outside, so that it may be wound up on a roller when not wanted, will answer, and if it be desired to keep the house as cool as possible, this should be so contrived that there will be a space of six inches or so between that and the glass. But upon a large house, or one with a curvilinear roof, this is not so manageable, and we find the best method is to spatter the glass outside with a preparation of naphtha and white lead made so thin as to resemble skimmed milk. This can be put on by a syringe at a cost of not over twenty-five cents for every thousand square feet of glass. When first done it should be spattered very thinly, merely to break the strong glare of the sun, just about thick enough to cover half the surface. As the season advances, the spattering should be repeated to increase the shade. Roses, Bouvardias, Smilax, Poinsettias, Primulas, etc., however, do not require more of the material at any time than just to cover the glass.

SHA

Frames, small green-house, etc., are easily shaded by means of a lattice made of common laths. Strips of inch stuff, an inch and a half or two inches wide, are used for the sides of the lattice, and laths are nailed across as far apart as their own width. One lath being nailed on, another is laid down to mark the distance, the third one put down and nailed, and the second lath is moved along to mark the distance for the fourth, and so on. With a screen of this kind there is abundant light, but the sun does not shine long at a time on one spot, and the plants have a constantly changing sun and shade. This lath screen may be used for shading plants in the open ground, if supported at a proper height above them. In a propagating house, where it is necessary, as it often is, to shade cuttings, a lattice laid upon the outside of the glass answers a good purpose. The laths are sometimes tied together with strong twine, the cord answering the place of slats, and serving as a warp with which the laths are woven; the advantage of a screen of this kind being that it can be rolled up. Another and excellent screen to shade is to make frames three by six feet of the "Protecting Cloth" already alluded to. Plants kept in windows during summer months will, if in a sunny exposure, require some kind of a shade, and, if the one provided to keep the sun from the room shuts out too much light, or excludes air as well as sun, something must be provided which will give protection during the heat of the day, and still allow sufficient light and an abundant circulation of air. Any one with ingenuity can arrange a screen of white cotton cloth to answer the purpose.

Shallot. *Allium Ascalonicum.* The Shallot or Eschalot is a native of Palestine, especially near the once famous city of Ascalon, whence its specific name. It was first introduced into England in 1548, and has ever since been cultivated to a considerable extent, and used in the same manner as the Onion. It is highly esteemed for pickles. Several varieties have been noticed; the only difference, however, seems to be in the size, which may properly be attributed to the cultivation, as it is largely upon this that the size depends. Shallots are grown to a considerable extent in the vicinity of New York. The bulbs are planted one foot between the lines and six inches between the plants, in October, and are marketed in the green state the following May. From the early maturing of the crop, they are always very profitable, though grown to a much less extent than Onions. Increased only by division.

Shamrock. The national flower or symbol of Ireland. So accepted because, according to tradition, St. Patrick used it to illustrate his teaching of the doctrine of the Trinity to the natives. Like the Scotch Thistle, antiquarians are in doubt as to the true Shamrock. Many think it is the *Trifolium repens* or common White Clover; others that it is the small yellow Clover, *Trifolium minus;* while numbers declare, and with much probability, that it is not a clover at all, but the common Wood Sorrel, *Oxalis Acetosella.* "English writers mention it as having been used as food in Ireland after the devastation caused by the wars of the sixteenth century. By persons

SHA

imperfectly acquainted with the Irish language, the word *shamsog* might easily be confounded with the name Shamrock, if they judged by the eye, as S and K have nearly the same form in the Irish alphabet. Clearly, then, *Shamrock*, or, to give it its true orthography, *Seamarog* (*Trifolium minus*) could never have been used for Wood Sorrel, except through ignorance, as *Seamar* is the generic name of all the species of Trifolium, and could never have been applied to so utterly different a plant as *Oxalis acetosella.*" Others, however, argue that in the days of St. Patrick Ireland was very thickly wooded, and that as his meetings would, in all probability, be held in their shelter, where the *Oxalis* is so very plentiful as to be in many places the only covering, it would be most readily used by St. Patrick to illustrate his subject. Mr. Mackay, in "Flora Hibernica," says, "that old authors said it was a sour, indigenous plant, showing itself on St. Patrick's day, and that it was eaten." He therefore concludes that it was not *Trifolium repens* but undoubtedly *Oxalis Acetosella.* We understand that nowadays any species of Clover with a tripartite leaf is used indiscriminately, *Trifolium filiforme* and *Medicago lupulina* being worn with other species in Dublin on St. Patrick's day.

Shamrock Pea. A name given to *Parochetus communis.*

Sheath. A part which is rolled round a stem or other body, as the lower part of the leaf that surrounds the stem.

Sheep Berry. *Viburnum Lentago.*

Sheep Laurel. See *Kalmia angustifolia.*

Sheep's Scabious. See *Jasione.*

Sheep's Sorrel. *Rumex acetosella.*

Sheffe'ldia repens, is a little New Zealand creeping plant of the Nat. Ord. *Primulaceæ*, with small, slender stems and small leaves. It is perfectly hardy, producing tiny white flowers in summer, and is an interesting plant for the rock-work or rock-garden.

Shell-bark Hickory. See *Carya.*

Shell-Flower. See *Chelone.*

Shell-Flower. Mexican. *Tigridia conchiflora.*

Shephe'rdia. Named after the late *John Shepherd*, Curator of the Botanic Garden of Liverpool. Nat. Ord. *Elæagnaceæ.*

A small genus of native shrubs or low-growing trees common on the banks of the Missouri River. They are favorite plants for shrubbery or lawn decoration, on account of their blooming very early in spring and their fine appearance in autumn, when their branches are thickly clad with rich clusters of crimson berries, resembling somewhat, in color and size, the common red Currant. They are popularly known as the Buffaloberry, Rabbit-berry, and sometimes as Beef-suet trees. Syn. *Elæagnus.*

Shepherd's Club, or **Shepherd's Flannel.** Popular names for *Verbascum Thapsus.*

Shepherd's Knot. *Tormentilla officinalis.*

Shepherd's Purse. *Capsella Bursa-pastoris*, one of our most common weeds. Introduced from Europe.

Shield Fern. See *Aspidium*

Shield Flower. The popular name for *Aspidistra.*

SHR

Shield Shaped. Round or oval and flat, with stalk attached to the lower surface.

Shin-leaf. The popular name of *Pyrola elliptica.*

Shittim Wood. Supposed to be the timber of *Acacia nilotica.*

Shoeblack Plant or **Shoe Tree.** A common name for *Hibiscus rosa-sinensis.*

Shooting Star. A western name for the *Dodecatheon Meadia*, which see.

Shoots. Blind. A name given to such shoots as do not flower, but which are often utilized for cuttings, as in Roses, Carnations, etc.

Sho'rtia. A genus placed by Professor Asa Gray in the sub-order *Galacineæ*, of the Nat. Ord. *Diapensiaceæ.* It differs very slightly botanically from *Galax. S. galacifolia* is interesting, not only as being one of our rarest native plants, but on account of Professor Gray's persistent endeavors to re-discover it. When he was in Europe in 1839, while examining the herbarium of the elder Michaux, collected in 1788 and preserved in the Museum at Paris, he found an unnamed specimen of a plant with the habit of Pyrola and the foliage of Galax, of which only the leaves and a single fruit were preserved, and which had been collected, the label said, in the "*Hautes montagnes de Carolinie.*" Two years later, having in vain searched for Michaux's plant, he ventured to describe it upon the strength of the scanty material already mentioned, dedicating it to Dr. C. W. Short, the author of a catalogue of the plants of Kentucky. Attention having thus been drawn to it, diligent search was made by eager botanists through all the mountainous region to which Michaux's label assigned the plant, but without success, until in May, 1877, it was re-discovered by Mr. G. Hyams on the banks of the Catawba River, near the town of Marion, at a considerable distance from the original station. These new specimens, gathered when the plant was in flower, confirmed at once Professor Gray's original ideas of the proper relationship of his genus, and enabled him to complete its characters and remodel the family to which it belonged. Its nearest allies are *Galax aphylla*, a beautiful evergreen herb with tall, erect racemes of pure white flowers, found on the southern slopes of the western Alleghanies, and the beautiful little *Pixidanthera barbulata*, of the New Jersey pine-barrens.

Showy Orchis. See *Orchis.*

Shrub. A woody plant which does not form a true trunk like a tree, but has several stems rising from the roots.

Shrubberies. This term is usually applied to a plantation of shrubs, which are generally arranged and planted with a view to producing an effect throughout the summer, but, by making a suitable selection and arranging with judgment, they may be rendered attractive, either in the flower or foliage, throughout the whole year. As a boundary or screen, dividing cultivated from wild grounds, or as a background for a mixed border in a flower garden, evergreen shrubs are unsurpassed. A large number of subjects, both evergreen and deciduous, may be planted in a mixed shrubbery, though forest-trees should not be admitted, or, if they are, merely with a view to their subsequent removal. The

STAPELIA.

SHORTIA GALACIFOLIA.

SELAGINELLA LEPIDOPHYLLA (RESURRECTION PLANT).

SENECIO PULCHER.

SENECIO MACROGLOSSUS (GERMAN IVY).

SONERILA.

SILENE PENDULA VARIEGATA.

SKIMMIA JAPONICA.

SIUM LATIFOLIUM.

SOLANUM ROBUSTUM.

SOLANUM MARGINATUM.

front line should be restricted to those plants that habitually remain compact and do not grow tall, while the back part may be filled with such specimens as are of an opposite description. Overcrowding is especially to be avoided, but in planting a new shrubbery a large number of duplicates may be inserted, which should be transplanted in a year or two, as the permanent specimens require additional space. Constant attention, by judicious pruning, is necessary to prevent strong-growing plants from overgrowing and crowding their neighbors. Summer pruning is of great assistance here; all those shrubs that flower on the wood made the previous year, such as Forsythias, Spiræas, Deutzias, Weigelias, etc., ought to be pruned back immediately after flowering; the young wood thus produced will develop for the succeeding year, and the plant will not be materially enlarged in comparison with an unpruned specimen. Many ornamental evergreen shrubs, grown principally for their foliage, may be pruned more or less extensively, according to the position they occupy or the purpose for which they are grown. Pruning should always be done, where practicable, with a knife, or pruning shears, thus leaving the subject in good shape without cutting the foliage or injuring the branches that are left. Clipping with shears is inadmissible, except where the shrubs are planted for a hedge, a purpose for which Altheas, Privet, Lilacs, Osage, Orange, etc., are often employed.

Shrubby Trefoil. See *Ptelea.*

Siberian Crab. See *Pyrus prunifolia.*

Siberian Pea-Tree. See *Caragana.*

Sibtho'rpia. Named after *Dr. Humphrey Sibthorp,* formerly Professor of Botany at Oxford. Nat. Ord. *Scrophulariaceæ.*

A genus of trailing, herbaceous plants, natives of South America, Europe and Africa. A few of the species are under cultivation. *S. Europæa* is a very pretty low-growing species, with yellow flowers and dark green foliage. It is a good plant for the shady border or for pot culture. The pot being suspended, it will droop all around it to a distance of three feet. There is a beautiful variety with variegated foliage, but it is more difficult to grow. *Disandra prostrata* is placed under this genus by some botanists, under the name of *S. peregrina.*

Sickle-pod. The popular name of *Arabis Canadensis.*

Sickle-wort. A common name for *Prunella vulgaris.*

Si'cyos. Star Cucumber. An old Greek name for the Cucumber. Nat. Ord. *Cucurbitaceæ.*

A genus of nearly a dozen half-hardy, climbing, annual herbs, natives of the warmer parts of America, the Pacific Islands and Australia. *S. angulata,* commonly called Wild Cucumber, is common on river banks, and is a weed in waste places and damp yards.

Si'da. Indian Mallow. An extensive genus of *Malvaceæ,* comprising herbs and shrubs, natives of the tropical and sub-tropical zones both of the Eastern and Western Hemispheres. Many of the species are used medicinally, and the bark of several contains an abundance of fibrous tissue, available for cordage, etc. The Chinese cultivate *S. tiliæfolia* for the sake of its fibre, which they prefer to hemp. Many species, formerly included here, are now classed under *Abutilon,* which see.

Sida'lcea. From *Sida* and *Alkea,* an ancient Greek name for some *Malva;* alluding to the appearance and alliances of the plants. Nat. Ord. *Malvaceæ.*

A genus of hardy, mostly perennial herbs, with the habit of *Malva* or *Althea,* natives of western North America. They are coarse-growing plants, and only *S. malvæflora, S. Oregana* and *S. acerifolia* are in cultivation.

Sideri'tis. Iron-wort. From *sideros,* iron; so named on account of a supposed property of healing flesh wounds inflicted by iron. Nat. Ord. *Labiatæ.*

A genus of nearly fifty species of hardy or half-hardy, often woolly, herbs or shrubs, natives of the Mediterranean region and the Canary Islands. Many of the species are useful for ornamenting the rock-garden or rockwork.

Sidero'xylon. From *sideros,* iron, and *xylon,* wood; alluding to the very hard wood furnished by the various species. Nat. Ord. *Sapotaceæ.*

A genus of nearly sixty species of stove or green-house shrubs, natives of Africa, Australia and New Zealand. The fruits of *S. dulcificum* have a very sweet taste, and are known, with others in western Africa, under the name of Miraculous Berry. The various species introduced are of little horticultural value.

Side-saddle Flower. See *Sarracenia.*

Sieve'rsia. Named after *M. Sievers,* a Russian botanical collector. Nat. Ord. *Rosaceæ.*

A small genus of hardy, herbaceous perennials, closely allied to *Geum.* The species from Austria and Switzerland have large yellow, solitary flowers and are quite handsome. They are propagated by division.

Sigmoid. Somewhat resembling in form the letter S.

Sil'ene. Catchfly. From *sialon,* saliva; in allusion to the viscid moisture on the stalks of many of the species, by which the smaller kinds of flies are entrapped; and hence the common name of the genus, *Catchfly.* Nat. Ord. *Caryophyllaceæ.*

A very large genus, mostly natives of southern Europe, North Africa and extra tropical Asia, containing many plants of much beauty. It numbers above a hundred and fifty species, which are chiefly hardy, herbaceous plants, or annuals of the same character. The latter, however, contain many which are mere weeds. Red, of various shades, is the prevailing color of the flowers, though both white and purple are found in it. *S. viscosa* is a popular biennial, frequently grown for the backs of large borders, and the old Lobel's Catchfly (*S. armeria*) is still occasionally met with. *S. Schafta* combines every good quality to be desired in border flowers, being hardy, herbaceous, trailing closely to the ground, and bearing a profusion of crimson red flowers. It is easy to grow either as a pot plant or in the open ground, and will, doubtless, occupy a prominent place when better known. The shrubby species of this genus are easily increased by cuttings; and, though hardy enough

to resist almost any amount of frost, they are sometimes injured by excessive wet, and for this reason a few should be potted and kept in a cold frame. Such of the annuals as are worth cultivating need only to be sown where they are to flower. Several species are common throughout the United States, but they are of less importance than those from southern Europe and Africa. First introduced in 1640.

Siliqua. The long tapering pod of *Cruciferæ.*

Silk Cotton-tree. See *Bombax.*

Silk Oak. See *Grevillea.*

Silk Tree. *Acacia Julibrissin,* a native of the Levant.

Silk-Vine. *Periploca græca.*

Silk Weed. *Asclepias cornuti.*

Si'lphium. Rosin Plant, Rosin Weed, Compass Plant. From *silphion,* the Greek name applied to an Asafœtida plant. Nat. Ord. *Compositæ.*

A small genus of strong-growing, herbaceous, perennial plants, common in the Western and Southern States. *S. laciniatum* is said to present its leaves exactly north and south, which gives it the name of Compass Plant. The leaves and stems of some of the species exude a large amount of rosin, whence the common name Rosin Weed. All the species are of far more interest to the botanist than the florist.

Silver Balm. See *Melissa.*

Silver Bell Tree. See *Halesia.*

Silver Berry. Missouri. The fruit of *Shepherdia argentea.*

Silver Bush. *Anthyllis Barba-Jovis.*

Silver Fern. See *Cheilanthes.*

Silver Fir. The popular name for *Abies pectinata.*

Silver Tree. Cape. *Leucadendron argenteum.*

Silver Weed. *Potentilla anserina.* See also *Impatiens.*

Sily'bum. Milk Thistle. An old Greek name applied by Dioscorides to some Thistle-like plants. Nat. Ord. *Compositæ.*

S. Marianum, the only species, is a glabrous, erect, biennial herb, included by some botanists under *Carduus.* "The specific name, *Marianum,* was given to this plant to preserve the legend that the white stain on the leaves was caused by the falling on the plant of a drop of the Virgin Mary's milk,"—Lindley. It was formerly cultivated, the young leaves being used as a spring salad, the root boiled as a pot-herb, and the heads treated like the heads of the Artichoke. It grows wild in waste places in many parts of Britain, and still retains its place in old-fashioned gardens. See *Carduus* and Scotch Thistle.

Sima'ba. The native name in Guiana of one of the species. Nat. Ord. *Simarubaceæ.*

A genus of trees and shrubs, natives of tropical America. Three species have been introduced, but *S. Cedron,* the Cedron Tree, is probably the only species in cultivation. It is a small tree, a native of New Grenada, and bears large panicles of flowers, often three to four feet long, succeeded by fruit about the size of a swan's egg. It is remarkable for the febrifugal properties of its seeds, which have also been from time immemorial reputed, in its native place, as a remedy for snake bites.

Every part of the plant, but especially its seed, is intensely bitter.

Simaro'uba. Sometimes spelled *Simaruba.* The Carib name of *S. amara.* Nat. Ord. *Simarubaceæ.*

A small genus of evergreen trees, natives of eastern and tropical America. Probably the only cultivated species is *S. amara* (the Mountain Damson), which yields the drug known as Simaruba Bark, which is, strictly speaking, the rind of the root, and is employed as a bitter tonic in diarrhœa and dysentery.

Simaruba'ceæ. A natural order of trees or shrubs, remarkable for the bitter taste of their bark. They are natives of hot countries, a very few only being found without the tropics. Thirty genera are referred to this order, which is closely allied to *Rutaceæ. Quassia, Ailantus, Brucea* and *Cneorum* are good examples.

Simmo'ndsia. Named in memory of *T. W. Simmonds,* a botanist and explorer, 1805. Nat. Ord. *Euphorbiaceæ.*

S. Californica, the only described species, is a small, hardy, evergreen, much branched shrub from California. It is seldom found in cultivation. Syn. *Bocchia.*

Simple. Consisting of not more than one distinct part.

Sina'pis. Mustard. From the Celtic *nap,* a designation applied to all plants resembling the Cabbage or Turnip. Nat. Ord. *Cruciferæ.*

A genus of hardy, yellow-flowered annuals. *S. nigra* is the common Black Mustard, and *S. alba* the White Mustard of commerce, both natives of Europe and most common on the shores of the Mediterranean. The former yields a greater portion of the Mustard in general use. Both species are extensively grown in England as field crops, and also in many other parts of Europe. These species are common in fields and waste places in this country, having escaped from the garden and become naturalized. There are several other species, but they are all of the same general character. *S. nigra,* which grows ten or twelve feet high in Palestine, is regarded by some as the "Mustard of Scripture" in preference to *Salvadora.*

Sinni'ngia. Named in honor of *William Sinning,* Gardener to the University of Bonn on the Rhine. A genus of some sixteen species of very pretty dwarf, pubescent herbs, natives of Brazil, and closely allied to *Gloxinia,* which genus they closely resemble, and require similar treatment for their culture.

Sinistrorse. Turned or directed to the left.

Sinuate. Strongly wavy; with the margin alternately bowed inward and outward.

Sinus. A recess or bay; the re-entering angles between two lobes or projections.

Siphoca'mpylos. From *siphon,* a tube, and *kampylos,* curved; in allusion to the curved shape of the flower. Nat. Ord. *Campanulaceæ.*

An extensive genus of handsome, low-growing, evergreen shrubs, natives of South America. The flowers are mostly tubular, scarlet or yellow, solitary on axillary stalks or in dense racemes or clusters. Several of the species are cultivated for their showy

flowers, among which is *S. bicolor* (syn. *Lobelia laxiflora angustifolia*), a well-known species. They are propagated by cuttings. Introduced in 1842.

Sipho'nia. From *siphon*, a tube or pipe; the use made of the exudation, which constitutes India Rubber. Nat. Ord. *Euphorbiaceæ.*

S. Brasilienis, an evergreen tree indigenous to tropical South America, is the most remarkable species of the genus. It is to this tree that we are indebted for the greater part of our supply of Caoutchouc or India Rubber. It is a native of French Guiana, and attains a height of seventy-five feet, rarely a hundred. The mode in which the rubber is obtained by the natives, is by making incisions through the bark of the lower part of the trunk of the tree, from which the sap, which is a fluid rosin, issues in great abundance, appearing of a milky whiteness as it flows into the vessel prepared to receive it. On exposure to the air, this milky juice gradually thickens into a soft, reddish, elastic rosin. This substance is poured into a mould, in small quantities at first, and is then exposed to a dense smoke, produced by the burning of nuts from several of the Palms, until it is sufficiently hard to bear another coat, when the process is repeated, until the mass is of a convenient size to handle for shipment. There are several other species of this genus that yield large quantities of rubber, common from Central America to Brazil. The first discovery of this valuable tree and its uses was made by M. de la Condamine in 1736, but it is only within the last fifty years that it has become an important article of commerce. *Ficus elastica* also produces the India Rubber of commerce, and is the best known of the rubber-producing trees, in consequence of being largely grown under glass for ornamental purposes (syn. *Hevea*).

Sisy'mbrium. Hedge Mustard. Nat. Ord. *Cruciferæ.*

A genus of hardy annual or biennial herbs of but little interest. It comprises some eighty species, natives chiefly of the temperate and cold regions of the Northern Hemisphere. *S. millefolium*, a perennial species, has elegant feathery foliage of a whitish color, and small yellow flowers. It grows well in any light soil.

Sisyri'nchium. Rush Lily, Satin Flower. Blue-eyed Grass. From *sys*, a pig, and *rynchos*, a snout; so called on account of the fondness that swine have for the roots. Nat. Ord. *Iridaceæ.*

A large genus of hardy, or half-hardy, perennial plants with fibrous roots; natives of tropical and North America. *S. grandiflorum* and its variety, *S. g. album*, is a beautiful perennial species that flowers early in spring, and is the only one worthy of general culture. The foliage is narrow and grass-like; the flowers, which are produced on slender stems six to twelve inches high, are bell-shaped and drooping, of a rich, deep purple in the typical plant, and of a pure, transparent whiteness in the variety. They form charming groups in the rock-garden in light, peaty or sandy soil in warm positions. They may be increased by careful division in fall, and are the better of some protection during winter. *S. Bermudiana* or Blue-eyed Grass, our native species, is very common in damp, cool meadows throughout the United States. The flowers are small, of a delicate blue, turning to purplish, and the plant, when out of flower, resembles a tuft of low-growing, coarse grass.

Sitolo'bium. A small genus of Ferns now included under *Dicksonia*, by many authorities.

Si'um. Skirret. From the Celtic *Siw*, water, the habitat of most of the species. Nat. Ord. *Umbelliferæ.*

S. sisarum, the only useful and cultivated species, is a handsome perennial plant, indigenous to China and Japan, is popularly known as Skirret, and to some extent used as a vegetable. The roots, which are the parts used, are composed of several prongs, about the thickness of a finger, joined together at the top; these are boiled and afterwards served in the same way as those of Salsify and Scorzonera. The plants are best grown from seed, and require a wet soil to succeed well. This species is placed by Hooker and Bentham under *Pimpinella*, but is best known as above.

Ski'mmia. From *Skimmi*, a Japanese word signifying a hurtful fruit. Nat. Ord. *Rutaceæ.*

A genus of half-hardy, evergreen shrubs, natives of Japan and northern India. The species known as *S. Japonica* is a pretty, dwarf-growing, holly-like shrub, with dark, shining, evergreen, entire, flat leaves, and clusters of bright red berries, which give the plant a very handsome appearance. Dr. Masters ("Gardener's Chronicle," April, 1889), after studying up the various Skimmias grown in English gardens, finds that much confusion has existed among botanists and cultivators about these plants, and that the plant universally known as *S. Japonica* is not that species at all, and that it is not even known to belong to Japan, but that the plant described as *S. oblata* is the true *S. Japonica* of Thunberg and of Siebold and Zuccarini, or rather the female of that species, in which male and female flowers are separated on different individuals. The *S. Japonica* of gardens, so considered by Lindley, with whom all this confusion originated, and afterward by Sir W. Hooker, when it was first introduced by Fortune from China, in 1849, Dr. Masters now first properly distinguishes under the new name of *S. Fortunei*. This is the common species in cultivation. Dr. Masters calls attention to the interesting facts that this plant is not represented by wild specimens in herbaria, and that its Chinese origin rests upon Fortune's own statements with regard to it, which he says have been generally overlooked, although published in the "Gardener's Chronicle" for 1852, p. 739, from which it appears that Fortune found this plant in a nursery-garden at Shanghai, to which he was told it had been brought from a high mountain in the interior called "Nang Shang." It is certainly both interesting and curious that nothing more definite is known of the origin of a plant which has become one of the most popular and universally used evergreen shrubs of English gardens. S. Foremani is a new form just introduced (1889) by the raiser for whom it is named. It is derived from *S. oblata*, fertilized with the pollen of *S. fragrans*. It is free-growing, and when covered with its bright scarlet fruits is

exceedingly ornamental. They are valuable hardy shrubs south of Washington.

Skirret. See *Sium.*

Skoke Berry. A local name for *Phytolacca decandra.*

Skullcap. See *Scutellaria.*

Skunk Cabbage. See *Symplocarpus fœtidus.*

Sleep-at-noon. See *Tragopogon pratensis.*

Slender Grass. See *Leptochloa.*

Slipperwort. See *Calceolaria.*

Sloe. A common name for *Prunus spinosa.*

Slugs. See *Insects.*

Smaragdinus. Grass green.

Smart Weed. See *Polygonum.*

Smeathma'nnia. In honor of *Smeathman,* a naturalist, who traveled in Africa, and collected many botanical specimens. Nat. Ord. *Passifloraceæ.*

A small genus of white-flowered green-house evergreen shrubs from Sierra Leone. Like all this natural order, the flowers are quite as remarkable for singularity of form as for beauty. This genus, unlike any others of the order, are upright shrubs instead of twining plants. They require a warm house, and to be well cut back to force into flower. Propagated by cuttings. Introduced in 1823.

Smilaci'na. False Solomon's Seal. From *smile,* a scraper; alluding to the roughness of the stems. Nat. Ord. *Liliaceæ.*

A small genus of hardy herbaceous plants, with terminal racemes of small white flowers. They are common in moist woods in the Northern and Western States. *S. bifolia* (syn. *Maianthemum bifolium*) is a beautiful little plant, about six inches high, and is popularly known in the New England States as Wild Lily of the Valley. All the species are worthy a place in the garden for their long bunches of beautiful, light-red, purple-speckled berries, which remain until late in autumn. Propagated from seed or root division. Syn. *Sigillaria, Medora,* etc.

Smi'lax. Green Brier, Cat Brier. From *smile,* a scraper; the stems are rough from prickles. Nat. Ord. *Liliaceæ.*

The many species of this genus are coarse-growing, troublesome, hardy climbers, justly regarded as pests by farmers and gardeners. The common Cat Brier of our hedgerows and woods, a prominent member of this family, has its reputation too well established to need further description. The genus includes some species celebrated for their medicinal properties. *S. officinalis,* a native of Columbia, Guatemala and Lima, furnishes the drug known as Sarsaparilla; besides this, there are several other species, the roots of which are sold as Sarsaparilla. *S. medica* is the Mexican Sarsaparilla and *S. papyracea* is the Brazilian Sarsaparilla. *S. China* has esculent roots, which are eaten by the Chinese and also used in the manufacture of domestic beer. The roots of several species of the Aralia are used in the adulteration of Sarsaparilla. "Smilax," popularly known as such, is the plant so extensively grown for festooning, and is described under its proper name, *Myrsiphyllum,* which see.

Smoke Tree. See *Rhus Cotinus.*

Smut. A Fungus which grows among the tissues of the stamens, ovaries, and leaves of various plants, but which especially infests Corn, Wheat, Barley, Oats and other plants of the same natural order. Owing to the Fungi developing and growing within the host-plants, no remedies can be employed that will not kill the plant also; the affected plant should therefore be rooted up and burned to prevent the spread of the disease.

Snail Flower. See *Phaseolus Caracalla.*

Snail Plant. *Medicago scutellata* and *M. helix,* the pods of which are called Snails from their resemblance to those mollusks.

Snake Cucumber. See *Trichosanthes.*

Snake Root. Black. A common name for *Actæa racemosa* and *Sanicula racemosa.*
Button. Various species of *Liatris.*
Canadian. *Asarum Canadense.*
Seneca. *Polygala Senega.*

Snake Root. Virginian. *Aristolochia serpentaria.*

Snake Root. White. See *Eupatorium ageratoides.*

Snake's-beard. The genus *Ophiopogon.*

Snake's-head. *Fritillaria meleagris,* also a local name applied to *Chelone.*

Snake's-mouth. *Pogonia Ophioglossoides.*

Snake-weed. *Polygonum bistorta.*

Snake-wood. See *Brosimum.*

Snapdragon. See *Antirrhinum.*

Sneezeweed. See *Helenium autumnale.*

Sneezewort. *Achillea Ptarmica.*

Snow-ball. Wild. *Ceanothus Americanus.*

Snowball Tree. See *Viburnum opulus.*

Snowberry. See *Symphoricarpus.*

Snow-bush. California. *Ceanothus cordulatus.*

Snow Creeper. East Indian. See *Porana.*

Snow-cups. Water. *Ranunculus aquatilis.*

Snowdrop. Crimean. *Galanthus plicatus.*

Snowdrop. Summer. *Leucojum æstivum.*

Snowdrop. See *Galanthus nivalis.*

Snowdrop Tree. See *Halesia.*

Snow-flake. Autumn. *Leucojum autumnale.*
Spring. *Leucojum vernum.*
Summer. *Leucojum æstivum.*
Winter. *Leucojum hyemale.*

Snowflake. The genus *Leucojum.*

Snowflake Flower. See *Styrax Japonica.*

Snowflower. *Chionanthus Virginica.*

Snow-flower. Japanese. *Deutzia gracilis.*

Snow Glory. *Chionodoxa Luciliæ.*

Snow in Summer. *Cerastium tomentosum.*

Snow on the Mountain. *Euphorbia variegata.*

Soapwort. The genus *Saponaria.*

Soap Bark Tree. *Quillaja Saponaria.*

Soap Berry Tree. *Sapindus Saponaria.*

Soap Bulb. A common name for *Chlorogalum Pomeridianum.*

Soap-Root. Egyptian. *Vaccaria vulgaris.*

Soboliferous. Bearing vigorous, lithe shoots from near the ground.

Soft Grass. A common name for *Holcus mollis.*

Sobra'lia. Named after *Don F. M. Sobral*, a Spanish botanist. Nat. Ord. *Orchidaceæ*.

The flowers of the principal species (*S. macrantha*) are gorgeously colored, of a rich rosy purple and the most intense crimson, and they are at the same time of large size. All the species belong to the class of terrestrial Orchids, being found on the margins of streams, growing like our reeds, in the alluvial deposit common to such places. This habit requires to be imitated in cultivation, and it is therefore best to pot them in very sandy loam, and either to place the pot for a few inches of its depth in a saucer of water, or to supply the roots by some other means abundantly with water while they are in an active state. The flowers are produced near the apex of the long, reed-like stems, and in the species mentioned are produced in daily succession, each one lasting a day, when it has been observed necessary to remove the decaying flower as soon as its beauty is past, or it rots, and consequently spoils the next in succession. Being natives of the milder parts of Guatemala, they do not require a very high temperature at any time, the ordinary one of a green-house being sufficient in summer, and from 45° to 50° in winter, when the plants should be kept nearly dry. There are three other species known, *S. decora*, *S. liliastrum* and *S. sessilis*, all of them beautiful, but far surpassed by the first mentioned. They are all natives of Central and South America and were introduced in 1836.

Soil. A good soil is the base of success in all operations of the garden What the properties of a good soil are is not very easy to convey in writing, as quality is not always confined to a particular color or texture, though the practical horticulturist can nearly always tell, by turning up with a spade, the relative qualities of a soil. If selection can be made for general purposes, a rather dark-colored soil should be chosen, neither too sandy nor too clayey, and as deep as can be found, but not less than ten inches, or the chances are that it will not be of first quality. It should overlay a sandy loam of yellowish color, through which water will pass freely. The condition of the *subsoil* is of the first importance in choosing soil. Sandy loam we believe to be the best; next to that a porous gravel, and the least to be desired is a stiff, blue clay. Land having a clay subsoil is always later in maturing crops than one having a sandy or gravelly subsoil; and, if the land is at all level, draining is indispensable at every fifteen or twenty feet, or no satisfaction can be had in culture. It is a common belief that poor land can be brought up by cultivation. A portion of the land used by us has the blue clay subsoil above referred to, and, although in the past twenty years we have expended large sums in draining, subsoiling, and manuring, we have failed to get it into the condition of other portions of our grounds having the proper subsoil, and do not think that any culture would bring it into as good shape.

The soil for potting plants in is often a matter causing great anxiety to the amateur florist, many of the books giving advice on the subject insisting that special kinds are indispensable for different families of plants. We are glad to tell our readers that in our own establishment, where upward of two millions of plants are now grown annually in pots, we do not find it necessary to make these nice distinctions. The great bulk of the soil we use in potting is composed of sods cut about three inches deep from any good sod land, preferring such as is known as sandy loam. The sods are heaped up in alternate layers of one-fourth of thoroughly rotted horse or cow manure or rotted refuse hops from breweries, when such are obtainable. Either of these three manures will do, separately or mixed together, as convenient. This compost is better to stand six or eight months, but often our necessities compel us to use it much sooner, which makes no material difference, provided it is at a season of the year when the sod will rot. The manure and sods are thoroughly mixed and chopped up, and for the smaller plants is run through a fine sieve.

Peat, so much insisted on as a necessity for Azaleas, Ferns and other fine-rooted plants, we rarely use, substituting instead either mould formed from thoroughly rotted refuse hops, or dried Moss (Sphagnum) run through a fine sieve; either of these, mixed in about equal parts with our sod mould, we use instead of peat for all thread-like rooting plants. Besides, true peat is rarely to be found in this country, and is well replaced by leaf mould, if necessary.

Soil for Seeds. See "Propagation by Seeds."

Soil. Importance of firming. See "Sowing, use of the feet in."

So'ja. From *sooja*, the name of a sauce made from the seeds in Japan. Nat. Ord. *Leguminosæ*.

S. hispida is a climbing annual plant, allied to *Dolichos*. It is much cultivated in tropical Asia on account of its beans, which are used for preparing a well-known brown and slightly salt sauce (Soy) used both in Asia and Europe for flavoring certain dishes, especially beef, and supposed to favor digestion. Of late it has been, to some extent, cultivated as an oil plant.

Solana'ceæ. A large natural order of erect or climbing shrubs or herbs, natives of all tropical countries, but more especially of America; a few are also found in more temperate climates. Many are remarkable for their strong narcotic, poisonous qualities. The most useful of all to man is the Potato (*Solanum tuberosum*); Tobacco (*Nicotiana*) is also a very important article of commerce. The Tomato (*Lycopersicum*) is very largely cultivated, as is also the Egg Plant (*Solanum Melongena*). Belladonna, Henbane and Stramonium are used largely in medicine. There are about sixty genera, the most important of which are *Capsicum*, *Nicotiana*, *Physalis*, *Datura*, *Hyoscyamus*, *Solanum*, *Petunia*, etc.

Sola'ndra. Named after *Dr. Solander*, a Swede, companion of Sir Joseph Banks in his voyage around the world and collector of the botanical notes made during the expedition. They are preserved in the British Museum and exhibit deep learning and great research. Nat. Ord. *Solanaceæ*.

A genus of coarse-growing, green-house, evergreen shrubs and climbers, natives of tropical America and the East Indies. The flowers are large and trumpet-shaped, like the *Datura*, to which they are allied. They

grow readily in the green-house, and make showy plants, the objection to them being that they are coarse. They are increased readily from cuttings. Introduced in 1820.

Sola'num. Nightshade. The derivation of this word is quite uncertain; some derive it from *Sol*, the sun; others say it is *Sulanum*, from *sus*, being serviceable in the disorders of swine; and others assert that it is from *solor*, to comfort, referring to its soothing, narcotic effects. Nat. Ord. *Solanaceæ*.

This very extensive genus is composed of a great number of varied forms, from that of a tropical tree to the creeping, indigenous weed; it also includes plants which produce valuable articles of food, as well as several species whose active properties are dangerously poisonous. The most important species in the genus is *S. tuberosum*, which is described at length under its more familiar name, Potato (which see). *S. melongena*, or Egg Plant of our gardens, "Aubergine" of the French, is a valued article of food in its season, and the berries of several other species are edible. *S. Dulcamara*, with oval red berries, and *S. nigrum*, with globular black berries, are the Bittersweet and common Nightshade of our hedges and roadsides, the fruits of which are poisonous. Several of the species are desirable for ornamental purposes. *S. Jasminoides* is a valuable green-house climber, producing, with but little trouble, an immense number of axillary clusters of pure white flowers nearly all season. It is a rapid grower, and suitable to train on a back wall or on pillars or rafters. *S. Capsicastrum*, *S. Pseudo-capsicum*, *S. ciliatum*, *S. Hendersonii*, and others are popular plants for green-house or house decoration when covered with their bright colored berries. *S. marginatum*, *S. Warscewiczii* and *S. robustum* are very showy large-leaved plants, and are valuable for subtropical decoration. A large number of other species have been introduced, and many of them are useful on account of their ornamental appearance. The annuals, and a large number of the other species, may be readily raised from seeds. Those which bear tubers may be readily increased thereby, and the stove and green-house shrubby sorts may generally be propagated from cuttings. Out of twenty tuber-bearing species which have been named, J. G. Baker, in the "Journal of the Linnean Society," vol. xx., is of opinion "that six, viz., *S. tuberosum*, *S. Maglia*, *S. Commersoni*, *S. cardiophyllum*, *S. Jamesii* and *S. oxycarpum*, possess a fair claim to be considered as distinct species in a broad sense."

Sola'ria. Named in honor of *Francisci de Borja Solar*, an eminent Chilian mathematician. Nat. Ord. *Liliaceæ*.

S. Miersioides, the only species introduced, is a remarkable, green-house, bulbous plant, with small green flowers, introduced from Chili in 1871. It is seldom found in cultivation except in botanical collections, and is increased by seeds or offsets.

Soldane'lla. A diminutive of *solidus*, a shilling; shape of the leaves. Nat. Ord. *Primulaceæ*.

A small genus of beautiful little alpine plants, very suitable for rock-work. They are half-hardy, herbaceous perennials, with purple or blue flowers, natives of Switzerland.

They will not stand the hot, dry weather of this country unless great care is taken to keep them shaded from the mid-day sun, and they must not be allowed to get dry. Propagated by division or from seeds.

So'lea. Green Violet. In honor of *W. Sole*, author of an essay on the genus *Mentha*. Nat. Ord. *Violaceæ*.

S. concolor, the only known species, is common in woods from New York southward. Syn. *Ionidium*.

Soleno'phora. From *solen*, a tube, and *phœrein*, to bear; in allusion to the tubular form of the corolla. Nat. Ord. *Gesneraceæ*.

A small genus of plant-stove, evergreen, pubescent shrubs, natives of Mexico. *S. coccinea* forms a neat plant, bearing showy, bright scarlet flowers in the axils of the leaves. *S. Endlicheriana* is a handsome plant with flowers of a bright orange color marked with purple, and large, broadly-elliptic, heavy leaves, a foot or more long, borne on long petioles. They require the same treatment as *Gloxinia*. Syn. *Arctocalyx*.

Solida'go. Golden Rod. From *solidare*, to unite; alluding to its supposed healing properties. Nat. Ord. *Compositæ*.

A very extensive genus of hardy, herbaceous perennials, indigenous to and common throughout the United States, only one species being found in Asia or Europe. The beauty of the plant would warrant its cultivation, had not Nature's hand rendered it entirely unnecessary.

So'llya. Named in honor of *Richard Horsman Solly*, a vegetable physiologist and anatomist. Nat. Ord. *Pittosporaceæ*.

A small genus of slender, twining, evergreen shrubs of much beauty. Their leaves are narrow, quite smooth, of a deep, glossy green on the upper surface, and paler beneath. The flowers are deep blue, and produced in terminal cymes or clusters of from six to ten flowers each. Though properly green-house plants, they are well adapted for summer flowering in the open border. *S. heterophylla*, typical of the genus, is a native of the Swan River country, where all the species are found. It was discovered by Mr. Drummond, and sent to England in 1836. It is increased either by cuttings or from seed, the latter being preferable. All the species are hardy from Virginia southward.

Solomon's Seal. See *Polygonatum multiflorum*.

Solomon's Seal. False. See *Smilacina*.

So'nchus. Sow Thistle. From *somphos*, hollow; the stems are hollow. Nat. Ord. *Compositæ*.

The more common species of this genus are coarse, roadside weeds, naturalized from Europe. One or two species with yellow flowers, from the Madeira and Canary Isles, are very ornamental. They are, however, rarely cultivated.

Soneri'la. From *Sootli-Soneri-ila*, the Khassee name of one of the species. Nat. Ord. *Melastomaceæ*.

A very extensive genus of East Indian plants, remarkable in the order for having all the several parts of their flowers in whorls of three, or trimerous, as it is technically called. The plants are mostly herbaceous, though sometimes sub-shrubby, and of variable habit;

some with and others without stems; some glabrous and others hirsute; and some with different kinds of leaves on the same plant. Their flowers are mostly purple or violet, borne on a scaphoid or boat-like raceme. Some of the hot-house species are beautiful plants. *S. Hendersoni* and its varieties, and *S. margaritacea*, with their handsomely marked foliage, are the most desirable. They require a warm, moist atmosphere to succeed well, and grow best in a soil composed chiefly of leaf mould and sand. Propagated by cuttings and from seeds.

Sonnera'tia. Named in honor of *Pierre Sonnerat*, a botanical traveler and collector. Nat. Ord. *Myrtaceæ*.

A genus of very glabrous shrubs or small trees inhabiting the coast regions of India and the islands of the Eastern Archipelago. All the species have opposite, entire leaves, without dots, and large, usually solitary, terminal flowers. Dr. McClelland, in his "Report on the Teak Forests of Peru," states that the Kambala, *S. apetala*, is found throughout the Sunderbunds at the mouth of the Ganges, and as far south as Rangoon, and that its strong, hard, close-grained wood is used at Calcutta for making packing-cases for beer and wine. Several ornamental species have been introduced, and are propagated by seeds, which ripen freely, or by cuttings.

Sopho'ra. Altered from *sophera*, the Arabic name of a leguminous tree. Nat. Ord. *Leguminosæ*.

A genus of deciduous trees, hardy herbaceous plants, and green-house evergreens. *Sophora Japonica*, the Chinese or Japanese Pagoda Tree, is a medium-sized tree, grows freely, and produces its large bunches of cream-colored flowers in August and September. The drooping Sophora, however, though only considered a variety of the tree, is very distinct. It is a trailing shrub, sending out shoots six feet or eight feet long in a single season; and when it is grafted on a stock of *S. Japonica*, ten or twelve feet high, these long, sweeping shoots, the bark of which is a bright green, have a peculiarly graceful appearance. The Sophora will grow in any soil, but a poor one suits it better than a rich one; its leaves seldom drop, even in the driest seasons.

Sophroni'tis. From *sophrona*, modest; referring to the pretty little flowers of the original species. Nat. Ord. *Orchidaceæ*.

Pretty little epiphytes, having a creeping stem, which should be attached to a block of wood, on which the root soon securely fastens itself. The leaves are sessile and comparatively small, while the flowers, especially those of *S. grandiflora*, are large and very handsome, of a rich orange-red, marked with darker bars. The plants should have the treatment of the smaller kinds of *Cattleya*, and are well deserving the attention of cultivators. The various species included in this genus are natives of Brazil, and were first introduced in 1827.

So'rbus. The generic name given by Linnæus to the Mountain Ash, or Rowan-tree, the cultivated Service-tree, and a few others, which, by their pinnate leaves more than anything else, appear to differ from *Pyrus*. Modern botanists now refer them to Pyrus, which see.

So'rghum. From *Sorghi*, its Indian name. Nat. Ord. *Graminaceæ*.

A genus of strong-growing, reed-like grasses, chiefly represented in this country by *S. saccharatum*, our well-known Broom Corn, a native of India, from whence it was introduced into Europe in 1759. The introduction of Broom Corn into this country as an agricultural product is attributed to Dr. Franklin. He is said to have accidentally seen an imported whisk of corn in the possession of a lady of Philadelphia, and while examining it as a curiosity, found a seed, which he planted, and from that single seed has sprung this important article of agriculture and manufacture in the United States. This species is grown almost exclusively for the manufacture of brooms; the seed is, however, valued highly for feeding to sheep, cattle and fowls. The seed crop is a precarious one, often completely failing, being injured by the frost before it is ripe. The crop is usually harvested before the seed is fairly ripe; hence there is considerable loss in that way. The seed crop is, however, only a secondary matter, and the profit that accrues from the seed is regarded an extra dividend on the profits of the farm. *S. sucre* is the Chinese Sugar Cane, or *Imphee*, a species introduced into the United States from France in 1856, and distributed by the Patent Office Department at Washington, but more extensively by an enterprising publisher in New York as a premium to his subscribers throughout the United States, for the purpose of growing the plant for the manufacture of sugar in our Northern States, which its advocates said could be done more profitably than sugar was produced at the South from the ordinary cane. The Abolitionists at the North, who could not conscientiously use the products of slave labor, were particularly active in introducing Sorghum, and were greatly disappointed when they found that the labor of the slave was not to be lessened by the withdrawal from the South of one of its most profitable industries. *S. vulgare*, another species, is the grand Millet of Arabia, known here as Durra or Doura, and which has been introduced into the United States, southern Europe, China and the West Indies, where it is extensively grown and much esteemed as food for laborers, and is called in the latter country Negro Guinea Corn. It is also grown extensively as a forage plant. *S. halapense*, a handsome species from southern Europe, northern Africa, Syria, etc., is most attractive when in flower at the end of summer, the inflorescence consisting of a dense panicle of purplish, awned flowers. It is a most suitable plant for groups or isolated specimens. It is now naturalized in some of the Southern States where it is known as Guinea Grass, Cuba Grass, and more generally as Johnson Grass, which see. *S. cernuum* is also grown there, and is known as Drooping Sorghum and Pampas Rice. All the species are grown in the same manner as our common field corn. The cultivation of Sorghum for the production of sugar and syrup has received a good deal of attention within a few years past, and many experiments have been made, and continue to be made, with various kinds of Sorghum, to ascertain not only their adaptability to particular soils and localities, but their sugar-producing

capacity. The "Report of the Department of Agriculture" for 1879, contains a very interesting and instructive report from the chemist of the department, giving the results not only of the yield per acre of the four leading kinds of Sorghum, as grown on the experimental grounds, but also the quantity of sugar and syrup extracted from each kind. The report is accompanied by many very useful tables. Believing the matter of this report to be valuable to those interested in the culture of Sorghum, we have condensed a portion of it, and herewith present it: During the past season (1879) there have been made several series of investigations for the purpose of determining the development of sugar in the juices of several varieties of Sorghum, Maize and Pearl Millet. These investigations appear to demonstrate that there exists little difference between the various kinds of Sorghum as sugar-producing plants; and, what is quite a surprising result, each of them is, at a certain period of its development, nearly, if not quite, as rich in sugar as the very best of Sugar-cane. It is a matter, also, of extreme practical importance that this maximum content of sugar is maintained for a long period, and affords sufficient time to work up a large crop. Another result of these investigations has been to satisfactorily explain the cause of repeated failure in the production of sugar during the past quarter of a century, and to give the assurance that, in the future, such failure need not attend this industry. For the purpose of making clear the above points, the results obtained in the laboratory and in out-of-door experiments are appended. The varieties of Sorghum grown and subjected to continuous investigation during the season were Early Amber, White Liberian, Chinese and Honduras, and the Pearl Millet. Besides the above there were made very many examinations of other specimens of Sorghums and Corn-stalks; all the results of which only confirmed the general principles above stated, viz., the practical equality and great value of every variety of this plant. The Early Amber Sorghum is the favorite variety with planters in Minnesota and the Northwest. What is now called the Minnesota Early Amber Cane is claimed as an improvement upon the Early Amber varieties grown formerly in different parts of Minnesota, by Hon. Seth M. Kenny and Mr. C. F. Miller, of that State. Acting on the theory that cane in a high latitude will degenerate if grown continuously from its own seed, these gentlemen selected the finest specimens of seed from their own crops and sent them to a southern latitude to be grown. The seed product of this southern growth was returned to Minnesota. By this alternation of seed, and by other intelligent processes of culture, they have succeeded in establishing a new and permanent variety, which they claim to be more productive in weight of cane and to contain a higher per cent. of saccharine matter than any other grown in that State. This claim needs to be substantiated by more careful and extended observations before it can be said to be fully established. Messrs. Kenny and Miller describe the Early Amber Cane as presenting "the characteristics of both Sorgho and Imphee." By Sorgho they mean the Chinese Sorgho, and by Imphee the

white Liberian and its kindred African varieties. The Early Amber receives its name from its early ripening and from the bright amber color which characterizes its syrup when properly made. The Early Amber Cane on the department grounds did not grow quite so tall as the White Liberian. Its seed-heads were of moderate fullness and of very dark color. The Chinese Sorghum grew on the department grounds to about the same height as the Early Amber. Its seed-heads are fuller and more compact, and somewhat resemble a head of Sumac; hence the synonym, "Sumac Cane." It is also known as "Chinese Cane." The White Liberian Sorghum is rather taller than the Early Amber. The stalk curves at the top, leaving the head pendant; hence the synonym, "Gooseneck." The seed-heads are shorter, more compact and of lighter color than the Early Amber. The Honduras Sorghum grows about one-half taller than either of the above varieties. Its seed-top is reddish-brown and spreading; hence the synonym, "Sprangle Top." It is also called "Mastodon," and "Honey Cane." The results of an analysis of each of the plants in the successive stages of development show that the amount of glucose (or uncrystallizable sugar) diminishes, and the amount of sucrose (or true cane sugar) increases. It may also be observed that the plants differ widely in the date when the sucrose is at its maximum, but are alike in this, that this maximum is attained at about the same degree of development of the plant, viz., at full maturity, as indicated by the hard, dry seed, and the appearance of offshoots from the upper joints of the stalk. It may also be observed that the heavy frost of October 24, which was sufficient to produce one-half inch of ice, did not cause any marked diminution of sugar. For the purpose of comparison, analyses were made of three varieties of Sugar-cane received from Louisiana, which arrived in excellent condition, and doubtless fairly represented the average character of this famous sugar-plant. It will be understood that the results are to be taken as a whole, since it was practically impossible to secure in each case specimen stalks for examination in the laboratory, the development of which in every case corresponded to the date when the plant was cut, and, therefore, it doubtless happened that plants taken from the same row upon September 15, for example, were in reality no further developed than those selected a week earlier; but, taken as a whole, the several series of the analyses are convincing, as showing the rate and progress of development of saccharine matter in the plant. The analyses of the several Sorghums under date of October 29, were made after they had been subjected to a very hard frost, sufficient to have formed ice one-half inch in thickness, and this cold weather continued for four days before this examination was made. There appeared to be no diminution of sucrose in either of the stalks examined, and no increase of glucose, as the result of this freezing and continued exposure to a low temperature. An examination was made on the 8th of November, after a few days of warm weather had followed this cold spell, and the influence of this subsequent thaw was noticeable in the diminution of sucrose and the in-

SOLANUM WARSCEWICZII.

SOLANUM CAPSICASTRUM.

SORGHUM VULGARE
(YELLOW BRANCHING DHOURA).

SORGHUM HALAPENSE (JOHNSON GRASS).

SORGHUM (EARLY AMBER).

SPIRÆA FILIPENDULA FL. PL.

SPIRÆA ASTILBOIDES.

SPARAXIS.

SPIRÆA VAN HOUTTEII.

SOR

crease of glucose in each specimen examined. From this it would appear that the effect of cold, even protracted, is not injurious to the quality of the canes, but that they should be speedily worked up after freezing and before they have again thawed out. This is a matter of such practical importance that some experiments should be made to learn whether the syrup prepared from the juice of frozen cane, differs from that prepared from cane not frozen, but in other respects of like quality. The Early Amber, Chinese, Liberian and Honduras Sorghums and the Pearl Millet examined, mentioned as having been grown upon the department grounds, were all planted the same day, May 15, 1879. The relative weights of the different kinds of Sorghum experimented upon are as follows:

	Pounds.
Early Amber, average of 40 stalks	1.73
White Liberian, average of 38 stalks	1.80
Chinese, average of 25 stalks	2.00
Honduras, average of 16 stalks	3.64

Since these were all grown side by side, and upon land presumably of equal fertility, it will afford the data for calculating the relative amount of each variety to be grown per acre. For more clearly presenting the facts developed by the examination of the four kinds of Sorghum, it may be observed that the Early Amber and Liberian correspond in their development, being almost identical, and yet clearly distinct varieties. It may also be stated, that while these two varieties attain a content of sugar in their juices equal to the average content in the juice of Sugar-cane by the middle of August, the Chinese does not reach this condition until the last of September, while the Honduras does not reach this point until the middle of October. After having attained approximately the maximum content of sugar, this condition is maintained for a long period, affording ample time to work up the crop. It is doubtless true that, had the season been longer, it would have been found that the Chinese and Honduras, having once attained this full development, of sugar, would also have retained it; but the heavy frosts and subsequent warm weather, which happened about November 24th, caused a rapid diminution of sucrose in each variety, and a corresponding increase of glucose. The converse of what is found true of the sucrose is true as to the development of the glucose, and a minimum quantity, once attained, is continued a long time, and this minimum is quite as low as the average amount found present in the sugar-canes. It is obvious that the results are not to be taken as entirely exact, but the general fact is, without doubt, true. An average of all the examinations made of these four Sorghums during the periods when they were suitable for cuttings, gives the following results: Early Amber, from August 13th to October 29th inclusive, fifteen analyses, extending over seventy-eight days, 14.6 per cent. sucrose. Liberian, from August 13th to October 29th inclusive, thirteen analyses, extending over seventy-eight days, 13.8 per cent. sucrose. Chinese, from September 13th to October 29th inclusive, seven analyses, extending over forty-six days, 13.8 per cent. sucrose. Honduras, from October 14th to October 29th inclusive, three analyses, extending over sixteen days, 14.6

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per cent. sucrose. Besides the investigations above mentioned, there have been made thirty-five experiments in making sugar from Corn-stalks, Sorghums, Pearl Millet, etc., in all of which there have been used over twenty-three tons of stalks. The result of these experiments has been to fully confirm all the experiments not only of the previous year, but also to help towards the solution of certain questions of the highest practical importance. In every case it has been found that the quality of the syrup obtained has been precisely such as the previous analysis in the laboratory of the juice used made probable. An average of the nine best syrups obtained showed a percentage of Cane sugar present equal to 92.7 of the amount originally present in the juice, while an average of the nine poorest (*i. e.*, containing the lowest percentage of Cane sugar) showed a percentage of Cane sugar present equal to 90.1 of the amount present in the juice. This must not be understood to mean that there has been no loss of sugar in the process of manufacture, as such conclusion would be quite erroneous. An experiment was also made to determine whether splitting the canes before they were passed through the mill would increase the percentage of juice obtained from the stalks. One hundred pounds of butt ends of Honduras Sorghum were split lengthwise, and then passed through the mill. Another parcel of one hundred pounds of butts of the same variety of Sorghum, equal in all respects to the previous lot, was passed through the mill without splitting them. The results obtained were as follows: Percentage of juice obtained from split stalks, 54 per cent.; percentage of juice obtained from unsplit stalks, 57 per cent.; from which it would appear that in this case at least the previous splitting of the stalks occasioned an appreciable loss in juice. A few of the experiments made give a reasonable basis for estimating the probable yield of syrup and sugar to the acre; and, therefore, an approximate estimate of the cost of producing sugar. Below is a tabulated result of a few of the experiments from stalks grown upon the grounds of the department. These stalks were grown in rows three feet apart and in drills, and although a good crop, there is no doubt but that, upon good land, the estimated yield to the acre could be obtained:

Varieties.	Pounds stalks per acre.	Syrup obtained,	Syrup, juice at best.	Syrup, juice = 70 per cent.
Chinese Sorghum	38,600	2,096	2,397	3,673
Liberian Sorghum	33,727	2,472	2,609	3,783
Early Amber Sorghum	32,415	2,100	2,615	3,661
Honduras Sorghum	66,151	3,652	5,168	7,537
Pearl Millet	65,000	1,846	3,128	4,865
Field Corn	27,240	1,166	.....	1,807

The first and second columns give the results actually secured, but the several juices were not in their best condition. The third column is the amount of syrup the same weight of stalks would have yielded had they been cut at the proper time. The juice obtained from the stalks by the imperfect means

at command of the department was little more than half the amount present in the stalks. The fourth column represents the results attainable by the use of a mill that would give 70 per cent. of juice from the stalks, a result which is possible, and which is claimed by manufacturers of mills. There is no doubt that, when the present industry shall have secured the employment of the capital and scientific ability which have developed the beet-sugar industry, even these results, which may appear extravagant to many, will be assured." There is much more of this report, but so intimately connected with large tabular statements that the two could not be separated, and the tables are too large to be transferred to these colums. We therefore suggest to all engaged in the cultivation of Sorghum to procure this report. It will be of great assistance to them in helping to determine many points relating to culture and the manufacture of syrup and sugar.

Sori. The name given to the patches of spore cases found on Ferns.

Sorrel. See *Rumex.*

Sorrel Tree. *Oxydendron* (*Andromeda*) *arboreum.*

Sorrel Wood. See *Oxalis Acetosella.*

Sorrowful Tree. A common name for *Nyctanthes arbor-tristis.*

Soula'ngia. In honor of *Soulange Bodin,* an eminent nurseryman near Paris. Nat. Ord. *Rhamnaceæ.*

A name proposed by Brogniart to separate some species of *Phillica* as a distinct genus, but the characters given have not proved sufficiently constant for its adoption.

Sour Gourd. A common name for *Adansonia digitata.*

Sour Gum Tree. See *Nyssa.*

Sour Sop or **Custard Apple.** See *Anona.*

South African Yellow Wood. *Podo carpus elongata.*

Southernwood. *Artemesia Abrotanum.* This is an old, well-known plant, found in almost every garden. It is grown for its medicinal properties, which are somewhat similar to wormwood. It may be easily propagated from cuttings, which root very readily in early summer and grow in any ordinary garden soil.

Sow-bread. See *Cyclamen Europæum.*

Sow-thistle. See *Sonchus.*

Sowerbæ'a. Named in honor of *J. E. Sowerby,* an eminent botanical artist. Nat. Ord. *Liliaceæ.*

A small genus of green-house, tufted, perennial plants with fibrous roots, natives of Australia. *S. juncea* and *S. laxifolia* are in cultivation, but are only of botanical interest.

Sowing. Is one of the operations of the garden that it is easy to give instructions in; and if they are carefully followed, there need never be failure. One of the most important things is the condition of the soil, which should be as thoroughly broken up and pulverized by plowing and harrowing, digging or raking, as its nature will admit, care being taken that it is worked when in that state, that is, neither too dry nor too wet. If too dry, particularly if the soil is of a clayey nature, it cannot well be got in the proper friable condition without an unusual amount of labor; and, on the other hand, if too wet, it clogs and bakes, and becomes so hard that the air cannot penetrate, leaving it in a condition from which good results cannot be obtained. We have seen stiff, clayey land that has shown bad results for years after, by being plowed and harrowed while too wet. Another condition of the soil, before sowing seeds, is to have the surface as smooth and level as possible. Seeds can either be sown broadcast or in drills, and for all garden operations the sowing is mostly done in drills. If sowing such vegetables as Parsnips, Onions, Beets or Carrots is to be done on a large scale, the use of the Seed Drill (which see) will save seed and labor; but if for ordinary garden use, it had better be done by hand. If only a small quantity is wanted, the drills can be made with a hoe; but if larger, a simple implement known as a Marker (which see) had better be used. It is often given as a rule, that seeds should be covered with soil only as deep as their own bulk; but this rule can hardly be followed in our dry climate, as many kinds would dry up or shrivel with such a slight covering. As an example, Onion or Carrot seed should be covered from a half inch to an inch, while Beans or Peas should be covered from two to three inches. For the sowing of Flower seeds, see "Propagation of Plants by Seeds." But the most important matter of all in sowing seeds in the open ground is, that they be properly firmed in the soil. A simple way is to tread the rows, after the seed is sown, with the feet. This is detailed fully below.

THE USE OF THE FEET IN PLANTING AND SOWING. The following article was read by us before the "Association of American Nurserymen," at Chicago, in 1883. As it is a matter of such vital importance, we make no apology for its introduction:

It may be useless to throw out any suggestions in relation to horticultural operations to such a body of practical men as is now before me. Yet I candidly admit that, although I have been extensively engaged in gardening operations for over a quarter of a century, I did not fully realize, until a few years ago, the full importance of how indispensable it was to use the feet in the operations of sowing and planting.

For some years past I have, in writing on gardening matters, insisted upon the great importance of "firming" the soil over the seeds after sowing, especially when the soil is dry, or likely to become so. I know of no operation of more importance in either the farm or garden, and I trust that what I am about to say will be read and remembered by every one not yet aware of the vast importance of the practice. I say "vast importance," for the loss to the agricultural and horticultural community, from the habit of loosely sowing seeds or planting plants in hot and dry soils, is of a magnitude which few will believe, until they have witnessed it; and it is a loss all the more to be regretted, when we know that by "firming" the soil around the seed or plant, there is, in most cases, a certain preventive.

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Particularly in the sowing of seeds, I consider the matter of such vast importance, that it cannot be too often or too strongly told; for the loss to the agricultural and horticultural community, by the neglect of the simple operation of firming the soil around the seed, must amount to many millions annually. For the mischief done is not confined only to the less important garden operations, but even Corn, Cotton, Wheat, Turnips, and other important crops of the farm often fail, in hot and dry soils, by being sown without being firmed sufficiently to prevent the dry air shriveling or drying the seeds. Of course, the use of the feet is impracticable in firming seeds on the farm, but a heavy roller, applied after sowing, is an absolute necessity under certain conditions of the soil, to insure perfect germination. From the middle of April to nearly the end of May of this year, in many sections of the country, there was little or no rain. Such was particularly the case in the vicinity of New York City, where we have hundreds of market gardeners, who cultivate thousands of acres of Cabbage, Cauliflower and Celery, but the "dry spring" has played sad havoc with their seed-beds. Celery is not one-fourth of a crop, and Cabbage and Cauliflower hardly half, and this failure is due to no other cause than that they persist in sowing their seeds without ever taking the precaution to firm the soil by rolling.

We sow annually about four acres of Celery, Cabbage, and Cauliflower plants, which produce probably five millions in number, and which we never fail to sell mostly in our immediate neighborhood, to the market gardeners, who have, many of them, even better facilities than we have for raising these plants, if they would only do as we do, firm the seed after sowing, which is done thus:

After plowing, harrowing, and leveling the land smoothly, lines are drawn by the "marker," which makes a furrow, about two inches deep and a foot apart; after the man who sows the seed follows another, who, with the ball of the right foot, presses down his full weight on every inch of soil in the drill where the seed has been sown; the rows are then lightly leveled longitudinally with the rake, a light roller is passed over them, and the operation is done.

By this method our crop has never once failed, and what is true of Celery and Cabbage seed is nearly true of all other seeds requiring to be sown during the late spring or summer months.

On July 2d of 1874, as an experiment, I sowed twelve rows of Sweet Corn and twelve rows of Beets, treading in, after sowing, every alternate row of each. In both cases, those trod in came up in four days, while those unfirmed remained twelve days before starting, and would not then have germinated had not rain fallen, for the soil was dry as dust when the seed were sown.

The result was, that the seeds that had been trodden in grew freely from the start, and matured their crops to a marketable condition by fall; while the rows unfirmed did not mature, as they were not only eight days later in germinating, but the plants were also, to to some extent, enfeebled by being partially dried in the loose, dry soil.

This experiment was a most useful one, for

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it proved that a Corn crop, sown in the vicinity of New York as late as July 2d, could be made to produce "roasting ears" in October, when they never fail to sell freely at high rates, but the crop would not mature unless the seed germinated at once, and which would never be certain at that dry and hot season, unless by this method.

The same season, in August, I treated seeds of Turnip and Spinach in the same way. Those trod in germinated at once and made an excellent crop, while those unfirmed germinated feebly, and were eventually nearly all burned out by a continuance of dry, hot air penetrating through the loose soil to the tender rootlets.

Of course, this rule of treading in or firming seeds after sowing must not be blindly followed. Very early in spring or late in fall, when the soil is damp and there is no danger from heated, dry air, there is no necessity for doing so, or even at other seasons the soil may be in a suitable condition to sow, and yet be too damp to be trodden upon or rolled. In such cases these operations may not be necessary at all, for, if rainy weather ensue, the seeds will germinate of course; but if there is any likelihood of continued drought, the treading or rolling may be done a week or so after sowing, if it is at such a season that there is reason to believe the seed may suffer from the dry, hot air.

Another very important advantage gained by treading in the seeds is, that when we have crops of Beets, Celery, Turnips, Spinach, or anything else that is sown in rows, the seeds to form the crop come up at once; while the seeds of the weeds, that are just as liable to perish by the heat as are those of the crop, are retarded. Such of the weed seeds as lie in the space between the rows when the soil is loose, will not germinate as quickly as those of the crop sown; and hence we can cultivate between the rows before the weeds germinate at all.

Now, if firming the soil around seed to protect it from the influence of a dry and hot atmosphere is a necessity, it is obvious that it is even more so in the case of plants whose rootlets are even more sensitive to such influence than the dormant seed.

Experienced professional horticulturists, however, are less likely to neglect this than to neglect in the case of seeds, for the damage from such neglect is easier to be seen, and hence better understood by the practical nurseryman; but with the inexperienced amateur the case is different. When he receives his package of trees or plants from the nurseryman, he handles them as if they were glass; every broken twig or root calls forth a complaint, and he proceeds to plant them, gingerly straightening out each root and sifting the soil around them, but he would no more stamp down that soil than he would stamp on the soil of his mother's grave. So the plant, in nine cases out of ten, is left loose and waggling; the dry air penetrates through the soil to its roots; the winds shake it; it shrivels up and fails to grow; and then come the anathemas on the head of the unfortunate nurseryman, who is charged with selling him dead trees or plants.

About a month ago I sent a package of a dozen Roses by mail to a lady in Savannah.

She wrote me a woeful story last week, saying that, though the Roses had arrived seemingly all right, they had all died but one, and what was very singular, she said, the one that lived was the one that Mr. Jones had stepped on, and which she had thought sure was crushed to death, for Mr. Jones weighs two hundred pounds. Now, though I do not advise any gentleman of two hundred pounds putting his brogan on the top of a tender Rose plant as a practice conducive to its health, yet, if Mrs. Jones could have allowed her weighty lord to press the soil against the root of each of her dozen Roses, I much doubt if she would now have to mourn their loss.

It has often been a wonder to many of us, who have been workers in the soil for a generation, how some of the simplest methods of culture have not been practiced until we were nearly done with life's work.

There are few of us but have had such experience; personally, I must say that I never pass through a year but I am confounded to find that some operation can not only be quicker done but better done than we have been in the habit of doing it.

These improvements loom up from various causes, but mainly from suggestions thrown out by our employees in charge of special departments, a system which we do all in our power to encourage.

As a proof of the value of such improvements which have led to simplifying our operations, I will state the fact, that though my area of green-house surface is now more than double that which it was in 1870, and the land used in our florist's business one-third more, yet the number of hands employed is less now than in 1870, and yet, at the same time, the quality of our stock is infinitely better now than then.

Whether it is the higher price of labor in this country, that forces us into labor-saving expedients, or the interchange of opinions from the greater number of nationalities centreing here, that gives us broader views of culture, I am not prepared to state; but that America is now selling nearly all the products of the green-house, garden, nursery, and farm, lower than is done in Europe, admits of no question; and if my homely suggestions in this matter of firming the soil around newly-planted seeds or plants will in any degree assist us in still holding to the front, I shall be gratified.

Soymi'dia febrifuga. The Rohuna of Hindostan is the only species of a genus of *Meliaceæ*, peculiar to the East Indies. It forms a tall tree with wood resembling mahogany, and a very bitter astringent bark. On the Coromandel coast of India, it is known as the Red-wood Tree.

Spadix. A succulent spike bearing many sessile, closely placed flowers; a spike inclosed in a spathe.

Spanish Bayonet or **Spanish Dagger.** A popular name for *Yucca aloifolia*, and other species.

Spanish Blue-Bell, or **Squill.** *Scilla Hispanica.*

Spanish Broom. See *Spartium junceum.*

Spanish Chestnut. *Castanea sativa.*

Spanish Lily. See *Hymenocallis.*

Spanish Oak. *Quercus falcata.*

Spanish Oyster Plant. See *Scolymus Hispanicus.*

Spara'xis. From *sparossa*, to tear; alluding to the lacerated spathes. Nat. Ord. *Iridaceæ.*

This genus is fast rising in the estimation of both the florist and the gardener. Varieties, very pleasing in color, are annually raised in Europe. It is a dwarf, bulbous family of plants from the Cape of Good Hope, producing flowers, many of them exceeding two inches across, exceedingly rich and beautiful in their coloring, being blotched, spotted, flaked and varied with pure white, yellow, orange, red, purple and violet, in almost every possible manner. They are more compact and dwarf than the Ixia, few of them attaining a greater height than six to twelve inches, and they succeed best planted in a frame where they can have a slight protection during winter. They succeed well also grown in pots in a cool green-house. The bulbs should be potted in September, and kept under a bench until they begin to grow, when they should be given light and water. Three or four bulbs may be put into a five-inch pot with good effect. They were first introduced in 1811, and are rapidly increased by offsets or by seeds.

Sparga'nium. Bur Reed. From *sparganon*, a fillet; because of the ribbon-like leaves. Nat. Ord. *Typhaceæ.*

A genus of marsh plants, of which the Bur Reed is typical, found in almost every part of the world. The root of *S. ramosum* and of *S. simplex* was formerly used medicinally under the name of *Radix sparganii*, and was supposed to cure snake bites. The stem has been used for making paper.

Sparma'nnia. In honor of *Dr. A. Sparmann*, a Swedish botanist, who accompanied Captain Cook in his second voyage around the world. Nat. Ord. *Tiliaceæ.*

S. Africana, African Hemp, the only described species of this genus, is a very beautiful, evergreen, green-house shrub, introduced into Europe from the Cape of Good Hope in 1790. It is a shrub from six to twelve feet high, with long-stalked, heart-shaped leaves, and clothed with soft, downy and pretty white flowers in umbels. *S. A. flore-pleno*, is a handsome double flowered variety. They are old favorites in the green-house, and are propagated by cuttings.

Sparrow Grass. A corruption of *Asparagus.*

Sparrows. Of late years the Sparrow has become a bone of contention with farmers and gardeners, many contending that they were more harmful than useful, driving away by their numbers and pugnacity the many insectivorous birds, as the Robin, Oriole, etc., which must feed on insects or starve, and even urging a war of extermination against them. In England strenuous efforts have for many years been made to limit their number by shooting the birds, removing the eggs and nests where accessible, and even, in some sections, by putting a price on their heads. Be this as it may, many of us can remember the disgusting Measuring-worm that festooned the shade trees in New York, Brooklyn, and other cities, some twenty-five years ago. These decreased in proportion as the Sparrows increased, and the trees in our parks and streets are now almost clear of their ravages. The same is true of the Rose Slug. Before the Sparrow got so plentiful in our neighborhood

we were obliged to employ a number of boys for weeks during the summer to shake off and kill the Rose Slug, but now, hardly one of these pests is seen. An examination of the crop of a Sparrow killed in July showed that it contained Rose Slugs, Green Fly, and the seeds of Chickweed and other plants, proving beyond question the fact that they are promiscuous feeders.

Sparti'na. Cord Grass. From *spartine*, a cord made from broom. Nat. Ord. *Graminaceæ*.

An extensive genus of perennial grasses, common throughout North America, and some parts of Europe. They chiefly inhabit wet or marshy places. Some of the species furnish a valuable fibre.

Spa'rtium. Spanish Broom. From *sparton*, cordage; alluding to the flexible shoots. Nat. Ord. *Leguminosæ*.

A small genus of hardy, deciduous shrubs, inhabiting a greater portion of the Mediterranean region. Some of the species have been cultivated in the English gardens for more than three hundred years. The growth is like that of the common broom, but the green polished twigs are terete and rush-like instead of angular. The handsome yellow pea-flowers, arranged in racemes at the ends of the twigs, are highly perfumed and very attractive to bees. A double-flowered variety is in cultivation. A number of the species are now referred to *Genista* and *Cytisus*.

Spatala'nthus. From *spatalos*, delicate, and *anthos*, a flower. Nat. Ord. *Iridaceæ*.

A very rare and beautiful Cape bulb, allied to *Trichonema*. There is but one species known, and that is rare in its own country. The flowers are red with a yellow and black star in the centre. It may be grown in a frame, or in pots in the green-house, requiring the same culture as the *Ixia*. It was introduced in 1825, and is propagated by offsets. This genus is now included under *Romulea* by many botanists.

Spatha'ntheum. From *spathe*, a spathe, and *anthos*, a flower; the flowers are seated on the midrib of the spathe. Nat. Ord. *Aroideæ*.

A small genus of tuberous-rooted perennials, found in Africa and South America. *S. heterandrum*, the only species in cultivation, is a very singular plant producing a solitary, bright-green, fleshy, deeply pinnatifid leaf, one foot long on a petiole two feet long. It was introduced from Africa in 1876, and is propagated by division of the tubers or by offsets.

Spathe. A broad sheathing leaf enclosing flowers arranged on a spadix, and guarding them while young, as in most Palms, Arums, etc.

Spathe'lia. A genus of *Simarubaceæ*, comprising three species of tall and showy evergreen trees, natives of the West Indies. *S. Simplex*, the May Pole, Mountain Green, or Mountain Pride of the West Indies, has a tall, slender stem, resembling that of a Palm, with red flowers in panicles several feet long. It is the only species introduced to cultivation, and is propagated by cuttings.

Spathiphy'llum. From *spathe*, a spathe, and *phyllon*, a leaf; alluding to the leaf-like spathe. Nat. Ord. *Aroideæ*.

A genus comprising over twenty species of stemless herbs, with sheathing, saggitate, entire leaves, natives of tropical America. Some of the smaller species such as *S. candidum*, *S. Patini* and *S. floribundum* are useful for decorative purposes, and form a very effective contrast with Anthuriums, etc. They require a moist atmosphere and an abundance of water, and are increased by division of the root-stock.

Spatho'dea. From *spathe*, a spathe; in reference to the form of the calyx. Nat. Ord. *Bignoniaceæ*.

A genus of very showy plants, natives of the East Indies, western Africa, Trinidad, etc. They are closely allied to *Bignonia* and require the same treatment as the stove-house species of that genus.

Spathoglo'ttis. From *spathe*, a spathe, and *glottis*, a tongue. Nat. Ord. *Orchidaceæ*.

A small genus of terrestrial Orchids, allied to *Bletia*, natives of the East Indies, southern China, the Malayan Archipelago and Australia. They have generally yellow flowers, many of the lately introduced species as *S. Viellardii*, *S. Lobbii*, *S. Pacifica*, etc., being very interesting and desirable Orchids.

Spa'thulate. Oblong; with the lower end very much attenuated, so that the whole resembles a druggist's spatula.

Spatter Dock. A common name for *Nuphar advena*.

Spawn. Mushroom. The vegetative part of a Mushroom represented by the delicate white down and strings or threads (mycelium) growing among masses of decaying stable manure, horse droppings, etc. In artificially prepared spawn, the mycelium grows in firm brick-shaped or loose masses, penetrating into all parts of these, and filling them with the white cells of which it is composed. If kept dry, Mushroom spawn will keep good for years. In England and France the preparation of Mushroom spawn is quite a large industry, large quantities being exported every year in addition to the home consumption. Many attempts have been made to prepare the spawn of truffles, but they have as yet been unsuccessful. The introduction of the spawn of valuable varieties, will, we have no doubt, some day, cause a considerable change in the produce of a Mushroom bed. See Mushroom.

Spear Grass. Various species of *Agrostis*.

Spear Grass. New Zealand. See *Aciphylla*.

Spearmint. See *Mentha viridis*.

Spearwort. *Ranunculus lingua*.

Species. "A species comprises all the individual plants which resemble each other sufficiently to make us conclude that they are all, or may have been all, descended from a common parent. These individuals may often differ from each other in many striking particulars, such as the color of the flower, size of the leaf, etc., but these particulars are such as experience teaches us are liable to vary in the seedlings raised from one individual."—Bentham.

Specula'ria. From the ancient name *Speculum Veneris*, or Venus's Looking-Glass. Nat. Ord. *Campanulaceæ*.

A small genus of hardy annuals, formerly included in *Campanula*. *S. speculum* is a distinct and pretty species, with purplish-lilac flowers, varying to rose-colored and white. They are among the many old garden favorites

now rarely met, though deserving a place in the border. They grow readily from seed, and a succession of sowing will keep up a continuance of bloom during the whole summer. One of the species, *S. perfoliata*, is a native of this country; the others are from central and southern Europe.

Speedwell. See *Veronica*.

Spergula pilifera. A synonym for *Sagina pilifera*, which see.

Spha'cele. From *sphakos*, the Greek name of Sage, which these plants resemble in foliage. Nat. Ord. *Labiatæ*.

A genus of green-house shrubby plants, natives of western America, from Brazil and Chili to California. A few species have been introduced, but are seldom found in cultivation. *S. Lindleyi*, which has ovate, cordate leaves, woolly beneath, is sometimes cultivated under the name of *Stachys Salviæ*.

Sphæra'lcea. Globe Mallow. From *sphaira*, a globe, and *Alcea*, Marsh-mallow, the carpels are disposed in a round head. A genus of green-house or hardy shrubs or herbs resembling Malva in habit, natives of the warm regions of America and the Cape of Good Hope. They are readily increased by cuttings of the young wood; *S. abutiloides*, *S. angustifolia*, *S. umbellata*, etc., are often cultivated under the name of *Malva*.

Sphæro'gyne. From *spharia*, a globe, and *gyne*, a female. Nat. Ord. *Melastomaceæ*.

This genus is remarkable for the color of its foliage. *S. latifolia* has large, broad, and flat leaves, deep green on top, the under side cinnamon brown, the leaves and stem being very hairy; it makes a magnificent specimen plant. A few other species are to be found in choice collections of ornamental-leaved plants. They are natives of tropical America, and are propagated by cuttings. Introduced in 1864. This genus is now included under *Tococa* by many botanists.

Sphæroste'ma. From *sphairo*, a globe, and *stemma*, a crown; in allusion to the arrangement of the stamens. Nat. Ord. *Schizandraceæ*.

A name under which the Asiatic species of *Schizandra* have been distinguished as a genus; now included by many botanists under *Schizandra*, which see.

Spha'gnum. A name given by Pliny for some kind of Moss. A genus of Mosses found in all temperate countries, and exceedingly common in our swamps and bogs. It is an excellent material for packing plants in, being extremely retentive of moisture, and yet contains so much astringency as to check decay. It is also used for potting orchidaceous and some other plants. This material has been long used in the packing of plants by both florists and nurserymen and in various other operations connected with Horticulture. In our uses of Sphagnum we have found another method of using it, the value of which will be apparent to those who have had experience in raising seeds under glass. Our method is as follows: In preparing the soil for seeds we get it as fine and rich as possible, passing it through a very fine sieve. This soil is placed in boxes only two or three inches deep, and it is then made perfectly level and as smooth as possible; on this smooth surface of soil the seeds are

sown, and then pressed down into the soil with a smooth board. The seed being thus sunk just to the surface of the soil, we now sift dry Sphagnum, that has been run through a wire mosquito net, over the seed, just thick enough to well cover it. This Moss forms a light, spongy covering, and affords just the best condition needed for germination; and we have found that any seeds having any vitality in them are certain to germinate by this method. The German Peat Moss, now largely used as an absorbent for liquid manure, etc., in stables, is simply the decayed Sphagnum of the swamps from which the water has been thoroughly expressed. When its great value as a deodorizer and absorbent becomes known, the large deposits of it in this country will doubtless become utilized. See "Manures—Absorbents for."

Sphena'ndra. From *sphen*, a wedge, and *andros*, an anther; alluding to the shape of the anthers. Nat. Ord. *Scrophulariaceæ*.

S. viscosa, the only species is a viscous-pubescent, annual or perennial herb, with pretty violet flowers. It is a native of South Africa, and is increased by seeds. Known in cultivation under the name of *Buchnera viscosa*.

Sphenode'sma. From *sphen*, a wedge, and *desme*, a small bundle; alluding to the form of the inflorescence. Nat. Ord. *Verbenaceæ*.

A genus of climbing shrubs, natives of India and the Malayan Archipelago. *S. pentandra*, the only species introduced, bears flowers six in a head, with a purple corolla and a white, very hairy, throat. It was introduced from India in 1823, and is increased by cuttings.

Spheno'gyne. From *sphen*, a wedge, and *gyne*, a female. Nat. Ord. *Compositæ*.

A genus of hardy annuals and green-house, evergreen perennials, mostly natives of the Cape of Good Hope. They have large, spreading, rayed flower-heads, of an orange color barred with black. *S. speciosa* is a showy annual, a native of South America, and resembles the *Anthemis*. It will succeed if sown in the open border in spring, but is much earlier and better if treated as a half-hardy annual and sown in early spring in heat. This genus is now included under *Ursina* by many botanists.

Spicate. Having, or resembling a spike.

Spice Bush. See *Lindera* (*Laurus*) *Benzoin*.

Spice Tree. *Oreodaphne Californica*.

Spider Flower. A common name for *Cleome*.

Spider Orchis. *Orchis aranifera*.

Spider. Red. See *Insects*.

Spider-wort. See *Tradescantia*.
Blue. *Commelina cœlestis*.
Branched. *Anthericum Liliago*.
Dwarf. *Tradescantia pilosa*.
Great Savoy. *Anthericum Liliastrum*.
Mountain. *Lloydia serotina*.

Spige'lia. Worm Grass. Named after *Adrian Spigelius*, a botanist at Padua. Nat. Ord. *Loganiaceæ*.

An extensive genus of half-hardy annuals and herbaceous perennials, some of which are ornamental border plants. The Pink Root, Worm Grass, or Indian Pink, is *S. Marilandica*, common in Pennsylvania and southward. It is a desirable plant for the rock-work or

rock-garden and is well known for its medicinal properties.

Spignel. A common name for *Meum Athamanticum.*

Spike. A long, simple axis, with many sessile flowers. A compound spike is a collection of spikes arranged in a racemose manner.

Spike Grass. See *Brizopyrum spicatum.*

Spikelet. A secondary spike; the term is especially applied to the small terminal collection of florets in grasses.

Spikenard. See *Aralia racemosa.*
Cretan. *Valeriana Phu.*
False. *Smilacina racemosa.*
Mountain. *Valeriana tuberosa.*
Ploughman's. *Conyza squarrosa* and the genus *Baccharis.*
West Indian. *Hyptis suaveolens.*

Spinach. Common Garden. See *Spinacia.*
Cuban. *Claytonia Cubensis.*
East Indian. *Basella alba,* and *B. rubra.*
New Zealand. See *Tetragonia expansa.*
Strawberry. *Blitum capitatum.*
Wild. A common name for *Chenopodium Bonus-Henricus.*

Spina'cia. From *spina,* a prickle; in allusion to the prickly processes of the seeds. Nat. Ord. *Chenopodiaceæ.*

The common Spinach is a hardy annual, and supposed to be a native of Western Asia, from the fact that in the early works of the Arabian physicians this plant is mentioned in connection with its medical properties, without the slightest allusion to its uses as a vegetable. Spain is supposed to have been the first European country into which it was introduced; for many of the old botanists call it *Olus Hispanicum,* and some of the old writers call it *Hispanach* or *Spanish Plant.* Beckmann, who wrote about 1790, says the first notice of its being used as a vegetable was in 1351, in a list of the different vegetables consumed on fast days by the monks. Turner, who wrote in England in 1538, mentions its being in common cultivation, and prepared for the table in precisely the same manner as it is at present. Spinach is an annual plant, having large and succulent leaves; the flower-stems rise to the height of two or three feet. The male and female flowers grow on different plants, the female yielding the seed. The former are produced in long terminal spikes, and the latter in close clusters at the joints of the stem or axils of the leaves or branches. *S. oleracea* is the only known species, and from this the several garden varieties have been obtained. The smooth Round Leaf is the variety mostly grown for market; the Prickly Leaved is more hardy, and is, therefore, the kind which used to be sown in the fall for a first early spring crop, until the variety known as the Savoy Spinach was introduced in 1875. This has a crumpled leaf resembling Savoy Cabbage, and is now extensively cultivated, particularly as a fall or winter sort, as it has proved hardier than any of the others, and produces a greater weight of crop. It has the fault, however, of running up sooner to seed than the Round Leaved, and, for that reason, is not so good to sow in spring. The variety known as "Thick-leaved" is one of the best market sorts. It produces a large, thick, strong, green leaf somewhat crumpled, and possesses the valuable quality of standing

a long time before running to seed. This variety is equally good for spring or fall. The "Long Standing" is another variety that possesses the peculiarity of standing a long time before running to seed, but in all other respects, it is very similar to the well-known "Round Leaf." Another variety, the "Large Round-leaved Viroflay" is a heavy growing sort, much resembling the "Thick-leaved." It is a good cropper and hardy.

Spinach in the latitude of New York should be sown from the fifth to the fifteenth of September, in rows twelve to fifteen inches apart. It is important with this, as with most other seeds, to firm the soil by treading on the rows with the feet, or using a heavy roller after sowing, as otherwise, if the weather is dry, the seed may be shriveled, so that it will not germinate if loosely covered. In all sections of the country where the thermometer falls below zero, and where there is not a certainty of snow for a covering, the Spinach should be covered up on the approach of severe weather (which is usually about the middle of December) with hay, straw, or leaves, to the depth of two or three inches, which covering should be allowed to remain until the Spinach begins to show green through it in the spring.

Spindle-shaped. Tapering to each end, like a Radish.

Spindle Tree. The genus *Euonymus.*

Spine. A stiff, sharp-pointed body, consisting of woody tissue covered with cellular tissue; a thorn.

Spinescent. Terminating in a sharp point or spine.

Spinose. Furnished with spines; of a spiny character.

Spiræ'a. From *speirao,* to become spiral; in allusion to the flexile branches being suitable for twisting into garlands. Nat. Ord. *Rosaceæ.*

A genus of over fifty species of deciduous, hardy shrubs or herbaceous perennials, broadly dispersed over the temperate regions of the northern hemisphere. Many of the shrubby species, with white or pink flowers, make beautiful plants for the lawn or shrubbery, as they grow in almost any situation, and continue a long time in bloom. Several of our native species, as *S. opulifolia* (Nine Bark) and its golden-leaved variety, *S. o. aurea, S. salicifolia* and *S. tomentosa,* are very handsome, and the various species introduced from China, Japan, etc., are exceedingly ornamental and useful as decorative plants. To assist those who wish a continuance of bloom we give a list of the most desirable species in the order of their blooming, from May to the middle of August: (1) *S. prunifolia fl. pl., S. Thunbergii, S. Niconderti*; (2) *S. cratægifolia, S. lanceolata* and its varieties, *S. trilobata, S. van Houttei*; (3) *S. opulifolia aurea, S. crenata, S. Fontenaysii, S. salicifolia, S. sorbifolia, S. Billardi*; (4) *S. cana, S. ariæfolia, S. Japonica* var. *Bumalda,* and the various varieties of *S. callosa.* Of the herbaceous species, *S. lobata* (Queen of the Prairies), one of the most stately of all the herbaceous Spiræas, is common in meadows in Pennsylvania and south and westward. The flowers are very handsome, of a deep peach-color, produced in clustered panicles on long, naked peduncles. It is greatly improved

by garden cultivation. There are many who think it finer than *S. palmata*, a species from Japan, and not so recent as some think it is. *S. aruncus*, the Goat's Beard, is a very showy species found in rich woods on the Catskill and Alleghany Mountains and westward. *S. astilboides* is an exceedingly elegant species introduced from Japan in 1880. It differs from *S. aruncus* in its compact habit, smaller leaves, and shorter spikes of flowers, which are of a pure white, those of *S. aruncus* being greenish or creamy colored. It is perfectly hardy and may be grown to perfection in any ordinary border of deeply tilled soil. *S. ulmaria*, with white flowers, is the Meadow Sweet, a native of Britain. *S. filipendula*, also white, and a native of Britain, is known as Drop Wort. *S. Japonica*, sometimes called *Astilbe* and *Hoteia Japonica*, and *Astilba barbata*, though best known here as *Spiræa Japonica*, is the most useful of the genus. It belongs to the herbaceous division, forms a most beautiful, hardy, border plant, about two feet in height, with branching spikes of pure white, feather-like flowers. This species is most extensively forced for winter flowers, and is one of the plants most used for decoration at the Easter holidays. Although it can be grown nearly as well here as in Europe, still, at present, the demand for it is so great that our home-grown stock has been altogether insufficient to meet the demand, and probably 100,000 roots are annually imported from England, Holland and Germany. The roots best suited for pot culture are those having a diameter of from five to six inches. These are potted in five and six-inch pots in fall, and covered up so that they do not freeze, but yet have no artificial heat. A dry, sheltered spot against a south fence or wall is best; then, covered with ten or twelve inches of leaves, they can be got at at any time during winter, and should be taken into a cool house—say an average of 45° at night—and watered sparingly until free indications of growth are shown. When well rooted, and the flower stems begin to show, they will stand a higher temperature, but at no time should it be higher than 55° at night, if the best development of flower is desired. It is not very easy to say what time it takes the plant to be at its best flowering from the time it is placed in the green-house; hence it is best to have them come in in succession. At an average of 50° at night and ten degrees higher during the day, from four to ten weeks will be required to get the plant in full development of bloom. A beautifully variegated-leaved variety of *S. Japonica* was introduced into the United States about 1865, from Japan, but it did not take kindly to our hot and dry climate, and has now nearly disappeared; but we believe, in the more congenial atmosphere of Britain, it makes a beautiful plant, as, added to its fine variegation, the flower spikes are more dense and compact than in the plain-leaved species. Another Spiræa, sent to the United States some ten years ago from London as *S. palmata*, is now well known, more from the fact of its being sent out as new, and at a very high price, than as being of any special merit in itself. The facts of the case are, that *S. palmata* had been introduced into England as early as 1822, and was to be found in every herbaceous plant collection in Britain, of any note. Some one had probably again found it in its native habitat, had not known of its long introduction, offered it as a new plant to some not over-scrupulous or not too well-posted nurseryman in London, and out it came on us at the modest price of half a guinea apiece, and sickly little morsels at that, while the *same* plant was offered with the same name in half-a-dozen catalogues at one-twentieth the price. We never yet have been able to understand this error, if error it was, as it was virtually endorsed by a score of the leading nurserymen in England, by their offering it as new in their catalogues, besides being described and lauded in several of the leading horticultural and botanical magazines in Europe, as well as in this country. Evidently the botanist (?) who collected it was a tyro at his work, or he would have known enough to look up the genus, so as not to stumble on some old name for his new-found bantling; but this he evidently did not do; for, if he had looked up Loudon's Encyclopædia of Plants, or any other of the more recent works, he would have seen that *S. palmata* was introduced in 1822; and if he had carried his investigations further, he would have found that his *S. palmata* was identical with that of 1822. Our excuse for treating this matter at length is, that many are not yet aware of the true state of the case, and continue to import *S. palmata* as a comparatively new plant, and yet at a high price. We may state further, that all the plants of this division of the genus are unsuited to our hot, dry climate, unless planted in partial shade.

Spiral. Twisted like a screw.

Spiranthe'ra. From *speira*, a spiral, and *anthera*, an anther; alluding to the spiral anthers. Nat. Ord. *Rutaceæ*.

S. odoratissima, the only described species, is a very handsome flowering, sweet-scented, glabrous, evergreen shrub, introduced from Brazil in 1823. It succeeds well in a compost of peat and loam, and is propagated by cuttings of the half-ripened wood.

Spira'nthes. Lady's Tresses. From *speira*, a spiral, and *anthos*, a flower; in allusion to the spiral manner in which the flowers are arranged. Nat. Ord. *Orchidaceæ*.

A genus of terrestrial Orchids, numbering about fifty species. Some require green-house treatment, and others are perfectly hardy, herbaceous plants. All the species are very pretty, but not of sufficient merit to warrant their introduction into the green-house. Of the hardy species, several are indigenous in the Middle States, three or four being found on Long Island. The flowers are small and white, produced on a spirally-twisted spike, by which the genus is easily recognized. *S. cernua*, a pretty, native species, is very variable in size, foliage, etc.; the common form, with pure white, sweet-scented flowers, is common in wet places in September and October.

Spire Lily. A common name for *Hyacinthus* (*Galtonia*) *candicans*.

Spirone'ma. From *speira*, spiral, and *nema*, a filament; alluding to the spirally-twisted bundles of vessels containing the filaments. Nat. Ord. *Commelinaceæ*.

S. fragrans, the only species described, is a robust growing perennial herb, more curious

SPIRÆA PALMATA.

SPHÆROGYNE.

STATICE ELATA.

STATICE SPICATA.

SPHENOGYNE.

SQUASH (LONG WHITE BUSH VEGETABLE MARROW).

STATICE SUWOROWI.

STEPHANOTIS FLORIBUNDA.

STATICE PYRAMIDALIS.

STANHOPEA.

SPINACH (SAVOY-LEAVED).

SPINACIA (SPINACH).

STIPA PENNATA.

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than handsome, with large, oblong-lanceolate leaves and erect, leafless, almost rush-like, flowering stems, having the small, fragrant flowers clustered along the rigid branches in the axils of chaffy scales. It is a native of Mexico, introduced to cultivation in 1839.

Spleenwort. See *Asplenium.*

Spo'ndias. Hog Plum. The Greek name for a kind of plum; the fruit resembles a plum. Nat. Ord. *Anacardiaceæ.*

A genus of evergreen trees common in the tropics of both hemispheres, chiefly interesting for their fruits. *S. lutea* yields an eatable fruit, called Hog Plum in the West Indies. The taste is said to be peculiar and not very agreeable to strangers. They are chiefly used to fatten swine. *S. dulcis*, a native of the Society Islands, yields a fruit the flavor of which is compared to that of the Pineapple. The flower buds of *S. Mombin* are used as a sweetmeat with sugar. Several of the species are esteemed for their medicinal properties, and one or two are cultivated as ornamental plants.

Sponge Gourd. See *Luffa.*

Sponge Tree. *Acacia Farnesiana.*

Sponge Wood. *Æschynomene aspera.*

Spongiole, Spongelet. A term used to denote the young, tender extremity of a root, by which it was generally supposed fluid food is absorbed from the earth. It is now understood that the root-hairs, and not the tips of the roots, absorb the fluid nourishment that plants take in from the soil.

Spoon Flower. The genus *Labisia.*

Spoon Wood. A local name for *Kalmia latifolia.*

Spoon-wort. The genus *Cochlearia.*

Sporangium and **Sporange.** From *spora*, a seed, and *aggeion*, a vessel; the latter word is sounded as if spelled *angeion.* Terms used to denote the small vessels or cases in which the spores of Ferns are produced on the backs of the fronds, in the little brown dots called sori.

Spore, Sporule. The reproductive body in cryptogamous plants, analogous to the seed of phænogamous plants.

Spore Case. The immediate covering of the spores of cryptogams.

Sport. A bud or seed variation.

Spotted Cowbane. See *Cicuta maculata.*

Spotted Wintergreen. See *Chimaphila maculata.*

Spra'guea. Named after *Isaac Sprague*, an American botanical draughtsman. Nat. Ord. *Portulacaceæ.*

S. umbellata, the only species, is a beautiful little annual, or biennial, according to the treatment given it; from California, allied to *Claytonia.* The leaves are all radical, and somewhat succulent; the flowers are densely imbricate in spikes, several of which form a dense umbel on a leafless scape, the large sepals giving it an elegant and singular aspect. It is readily grown from seed. Introduced 1859.

Spreading. Having a gradually outward direction, as petals from the ovary.

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Spreke'lia. Named after *Dr. Sprekel*, a German botanist. Nat. Ord. *Amaryllidaceæ.*

S. formosissima, commonly known as *Amaryllis formosissima*, or Jacobæan Lily, the only described species of this genus, is a bulbous plant, with splendid dark scarlet flowers. It is called Jacobæan on account of the brilliant scarlet of its flowers, which the Spaniards in Peru thought resembled the scarlet swords worn by the knights of the order of St. James (Jacobæus). These bulbs succeed well planted in the open border in May. They produce their flowers in June, and the bulbs ripen off by fall, when they should be taken up and dried with the tops on, and stored in a dry room free from frost, until time for planting out again. They are desirable for pot culture, or for growing in glasses like Hyacinths, requiring the same culture, and are increased by offsets. They are natives of Guatemala, and were introduced in 1658.

Spring Beauty. A local name for *Claytonia*, which see.

Spring Bell. A common name for *Sisyrinchium grandiflorum.*

Spring Snowflake. See *Leucojum vernum.*

Spruce. The popular name of the genus *Abies*, which see.

Spru'cea. Named after *Mr. Spruce*, who discovered the plant on the shores of the Amazon, near the mouth of the Rio Negro. Nat. Ord. *Rubiaceæ.*

A handsome, tall, bushy shrub, bearing large, yellowish, cream-colored flowers, in dense terminal panicles, with a fine scent of vanilla. It is seldom found in cultivation.

Spur. A hollow tubular extension of some part of a flower, usually nectariferous; as in the calyx of the Larkspur and the corolla of the Violet.

Spurge. The genus *Euphorbia.*

Spurge Laurel. *Daphne Laureola.*

Spurge Nettle. A common name for *Jatropha urens.*

Spurge Olive. A popular name for *Daphne Mezereum.*

Spurred Butterfly Pea. See *Centrosema.*

Spurred Gentian. *Halenia deflexa.*

Spurrey. The genus *Spergula.*

Squamate, Squamose. Scaly; covered with small, scale-like leaves.

Squarrose. When bodies are rough with spreading and projecting processes. Imbricated bracts, scales, or leaves are said to be Squarrose when their tips are pointed and very spreading or recurved.

Squash. (*Cucurbita melopepo.*) The history of the Squash is more obscure than that of any other vegetable of equal importance in the garden. It was found in cultivation by the Indians on the Island of Nantucket by the earliest settlers; there was, however, but one kind, the small, warted Pumpkin. From this peculiar variety the common Field Pumpkin is supposed to have originated. Several varieties have been introduced from South America, and among them the Mammoth Squash from Valparaiso, the seed of which was sent here by Commodore Perry. Several other of our best sorts have been received from there

and the West Indies; their parentage, however, is entirely unknown. A large number of varieties are grown under distinctive names, many of which are cross-breeds. The popular summer varieties are White and Yellow Bush and Summer Crookneck. For fall and winter, Hubbard, Essex Hybrid, Marblehead and Mammoth Chili. Most of the winter varieties, if kept in a dry atmosphere at a temperature of about forty degrees, will keep until May. They require well manured ground to succeed well, with generally some special manure in the hills. For the bush sorts three to four feet apart is sufficient, but the running sorts require to be from six to eight feet apart.

Squaw Root. See *Conopholis.*

Squaw Weed. *Senecio aureus.*

Squill. See *Scilla.*

Squill, Striped. A common name for *Puschkinia scillioides.*

Squirrel Corn. See *Dicentra Canadensis.*

Squirrel Tail Grass. See *Hordeum.*

Squirting Cucumber. *Ecballium Elaterium.*

Staa'via. Named after *Martin Staaf*, a correspondent of Linnæus. Nat. Ord. *Bruniaceæ.*

A genus of green-house shrubs, much resembling Heaths or Epacris, natives of the Cape of Good Hope. The flowers intermixed with chaffy scales are arranged in showy heads with numerous white bracts. *S. glutinosa*, the best known species, thrives best in a compost of sandy peat and loam, and is increased by cuttings of the young wood.

Sta'chys. Hedge Nettle. From *stachys*, a spike; their manner of flowering. Nat. Ord. *Labiatæ.*

A genus of shrubby and herbaceous plants, common throughout the United States and Europe. None of the species has any special merit, except *S. lanata*, which is used to a considerable extent in the formation of white lines for ribbon borders or massing; it is propagated by cuttings.

Stachytarphe'ta. From *stachys*, a spike, and *tarphys*, thick; alluding to the form of the inflorescence. A genus of *Verbenaceæ*, consisting of aromatic herbs, shrubs, or sub-shrubs, natives for the most part of tropical or subtropical America. *S. Jamaicensis* is possessed of remarkable medicinal virtues, according to the Brazilians, and the leaves of this species and *S. mutabilis* are used to adulterate tea, and in Austria they are sold under the name of Brazilian Tea. The shrubby sorts are easily increased by cuttings, and the annual species by seeds.

Stachyu'rus. From *stachys*, a spike, and *oura*, a tail; in allusion to the shape of the Catkins. Nat. Ord. *Ternstræmiaceæ.*

A genus consisting of only two species of half-hardy, glabrous shrubs, one being Japanese, the other Himalayan. *S. præcox* produces its yellowish-green flowers in great profusion before the leaves are unfolded, and is readily propagated by cuttings of the half-ripened wood. Introduced from Japan in 1864.

Stadma'nnia. In honor of *M. Stadmann*, a German botanical traveler. Nat. Ord. *Sapindaceæ.*

A genus of lofty-growing trees, with large, showy leaves, natives of Australia. The

species have been united with *Cupania* by modern botanists.

Staff Tree. See *Celastrus.*

Stage. See Table.

Stagger Bush. *Andromeda Mariana.*

Stag's Horn Fern. See *Platycerium alcicorne*

Stag's Horn Sumach. A common name for *Rhus typhina.*

Stalk. The stem or support to an organ, as the petiole of a leaf, the peduncle or pedicel of a flower, etc.

Stamen. That organ of the flower which contains the pollen.

Standard. The fifth petal of a papilionaceous flower.

Standing Cypress. See *Ipomopsis.*

Stange'ria. Named after *William Stanger*, Surveyor-General of Natal, who died in 1854. A remarkable genus of *Cycadaceæ*, quite distinct from any other of the order in its Fern-like foliage. *S. paradoxa*, the only species, a Natal plant with a thick, napiform trunk, is closely related to *Encephalartos* in structural characters, but differs remarkably in habit and foliage.

Stanho'pea. In compliment to *Earl Stanhope.* Nat. Ord. *Orchidaceæ.*

A very beautiful genus of epiphytal Orchids, remarkable for their extraordinary flowers, curious in form and richly colored, and also for their singular habit of throwing the flower-stem from the base of the psuedo-bulbs in a downward direction. When first introduced (1830) the plants were placed in pots in the usual manner, and were supposed to be difficult to flower, until the accidental breaking of a pot exposed the flowers perishing in the soil beneath the plants. This circumstance led to the prevalent method of growing them in baskets made of small sticks of Cedar, Locust, or other woods not liable to decay, which, being open at intervals, allows the flower-spikes to protrude in their natural position. Baskets about a foot and a half in diameter and six inches deep are sufficiently large for well-grown specimens. The soil should be leaf-mould and sphagnum moss, about one-fourth of the latter, with small pieces of charcoal intermixed for perfect drainage. Some successful growers use only the moss and charcoal or potsherds. Stanhopeas require plenty of water while growing. The moss should be thoroughly soaked every day, and a slight syringing, or what is better, a dense application of steam every night and morning. Most of the species make two growths in a year, and with proper management will also bloom twice; but some care is required to have the latter growth duly formed before the winter sets in, or there is much danger of their rotting. If an active growth can be started about the first of February, the first pseudo-bulbs will be formed, and the flowers fully perfected in May, which leaves good time to complete the second flowering. A temperature of from 70° to 85° will grow them best, and for the winter, or resting period, from 55° to 60° is sufficient. They do not require to be frequently shifted, but when this is done the plant should be put, basket and all, into a larger one, as it is impossible to remove them without serious injury to the

roots. *S. Bucephalus*, *S. tigrina superba*, *S. Martiana*, *S. grandiflora* and *S. Wardiana*, are among the finest species of this genus. They are increased by division.

Sta'nnia formosa. A native of the Caraccas, is a highly ornamental stove-house plant with white fragrant flowers three to four inches in length. The genus is now placed by many botanists under *Posoqueria*.

Stape'lia. Named by Linnæus after *Boderus Stapel*, a physician of Amsterdam and commentator on Theophrastus. Nat. Ord. *Asclepiadaceæ*.

This is a genus of very curious green-house plants, with showy, star-like flowers proceeding from the base, which smell so much like carrion that flies have been known to lay their eggs upon them. As these plants are very succulent, they are apt to damp off if they are grown in rich soil or receive too much water. They are propagated by cuttings, which should be laid on the shelf for two or three days to shrivel before they are planted. All the Stapelias are natives of the Cape of Good Hope. The flowers are very singular as well as showy, and would be highly prized were it not for their offensive odor; but notwithstanding, they are very interesting plants, and the odor is of no long continuance. They were first introduced in 1710.

Staphy'lea. Bladder Nut. Abridged from *Staphylodendron*, its ancient name, from *staphyle*, a bunch, and *dendron*, a tree; the flowers and fruit are disposed in clusters. Nat. Ord. *Sapindaceæ*.

A genus of deciduous shrubs, which are widely dispersed. One species, *S. trifoliata*, indigenous in the United States, is a handsome shrub, with terminal panicles of white flowers, produced in May. *S. Colchica* is an excellent subject for early forcing; plants in small pots producing a dozen or more spikes of beautiful white, fragrant flowers, which will last in perfection at least three weeks.

Staphylea'ceæ. A sub-order of *Sapindaceæ*.

Star-Apple. The genus *Chrysophyllum*.

Star Flower. *Trientalis Americana*; the name is also applied to several species of *Aster*, *Sternbergia* and *Tritelia*.

Star Grass. See *Hypoxis*.

Star Hyacinth. *Scilla amoena*.

Star of Bethlehem. See *Ornithogalum*.

Star of Night. A common name for *Clusia rosea*.

Star Thistle. *Centaurea Calcitrapa*.

Star-wort. A common name for *Aster* and *Stellaria*.

Staphy'leæ. A tribe of *Sapindaceæ*.

Sta'tice. Sea Lavender, Marsh Rosemary. From *statikos*, astringent; in allusion to the powerful astringency of some of the species. Nat. Ord. *Plumbaginaceæ*.

Singular plants, the foot-stalks of the flowers of which are colored so as to resemble flowers, while the real flowers are the white part at the extremity of the purple. The handsomest species belonging to the genus is *S. arborea*, a native of the Canaries, which is quite shrubby. This splendid plant should have plenty of room for its roots, and thus, when there is not a conservatory for it to be planted in, it does better in the open border with a slight protection during winter, than in a pot in a green-house. *S. macrophylla* and its variety, *S. Halfordi*, are exceedingly useful in the conservatory or green-house, their clear white flowers contrasting well with the deep blue bracts. They are very free flowering, and succeed well in good turfy loam with a little well-rotted cow manure and sand mixed with it. They may be increased by cuttings during the early spring months. *S. Suworowi*, a recent introduction from Turkestan, is a strikingly beautiful, hardy annual, with pretty lilac-colored flowers, produced in dense branched spikes. The common kinds of Statice are generally increased by seeds or by dividing the root, and they should be allowed plenty of space, as they are easily killed when crowded by other plants. *S. Limonium*, Sea Thrift, the only species that is a native of this country, is common in salt marshes along the southern coast, and is gathered in considerable quantities for making winter bouquets.

Stau'ntonia. In honor of *Sir George Staunton*, Bart., who introduced numerous plants from China. Nat. Ord. *Lardizabalaceæ*.

This genus consists of but two known species, both woody climbing shrubs, from China and Japan. The flowers are produced from the axils of the leaves, and are white and fragrant. The plants are of easy culture, but of no special interest, excepting in botanical collections.

Staura'nthera. From *stauros*, a cross, and *anthera*, an anther; the anthers cohere in the form of a cross. Nat. Ord. *Gesneraceæ*.

A small genus of stove-house plants, natives of the East Indies and the Malayan Archipelago. *S. grandifolia*, the only species introduced, has very pretty flowers about an inch long, the corolla tube white, tinged with purple and pale yellow. It thrives in a mixture of loam and sandy peat, and is propagated by cuttings. Introduced from Moulmein in 1862.

Staurosti'gma. From *Stauros*, a cross, and *stigma*, a stigma; in allusion to the cross, or star-shaped stigmas. Nat. Ord. *Aroideæ*.

A small genus of tuberous, stoloniferous, stove-house plants, natives of tropical America. Their leaves are much divided and are borne on long petioles. They require a season of rest, during which the plants should be very sparingly watered. There are over six species introduced, but they are seldom found in cultivation.

Stavesacre. The acrid, emetic-purgative seeds of *Delphinium Staphysagria*.

Steeple Bush. A common name for *Spiræa tomentosa*.

Stella'ria. Chickweed, Star Wort. From *stella*, a star; the flowers are star-like. Nat. Ord. *Caryophyllaceæ*.

With the exception of *S. Holostea*, a pretty little white, early spring flower, this genus is a family of weeds of the most troublesome character. There are several species indigenous in this country, all well known. *S. media*, common Chickweed, is the most troublesome weed of the garden, particularly in the fall months.

Stellate. Star-shaped.

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Stem. The ascending axis of a plant, from which leaves, flowers and fruit are developed.

Stena'ctis. Probably from *stene*, narrow, and *aktin*, a sunbeam; from the narrow and sun-like rays of the expanded flower. Nat. Ord. *Compositæ*.

A small genus of erect-branched herbs, natives of North America, Northern India, etc., with showy white, violet or light purple flowers. This genus is now included as a section of *Erigeron*.

Stenanthe'ra. From *stenos*, narrow, and *anthera*, an anther; the filaments are broader than the anthers, which causes the latter to appear narrow. Nat. Ord. *Epacridaceæ*.

A genus of two species of beautiful evergreen shrubs, both natives of Australia, with almost sessile red flowers, often crowded at the base of the branchlets. Like all other plants of this order, the roots are very fine and impatient of the application of much water, consequently ample drainage must be provided in the pots. Propagated by cuttings of the half-ripened wood. Syn. *Astroloma*.

Ste'nia. From *stenos*, narrow; in allusion to the form of the pollen masses. Nat. Ord. *Orchidaceæ*.

A small genus of very handsome epiphytal Orchids, natives of New Grenada, Columbia and Peru. *S. fimbriata* is a very showy plant. The leaves are long, narrow and dark green; the flowers are bright yellow, with a paler lip, beautifully spotted with carmine, and are produced on slender scapes. There are one or two other species under cultivation. Propagated by division.

Stenoca'rpus. Fire-tree or Tulip-tree of Queensland. From *stenos*, narrow, and *karpos*, fruit; the fruit being long and thin. Nat. Ord. *Proteaceæ*.

S. Cunninghami, a tree but rarely met, excepting in botanical collections, is one of the noblest and most interesting trees in cultivation. It is a lofty tree, producing its dark yellow or orange-colored flowers in terminal or axillary clusters, in the greatest profusion. In general appearance it resembles the evergreen Oaks. It requires considerable age before it will flower in the green-house, but when that age is reached, there is no shrub or tree more prolific or beautiful. Introduced from Moreton Bay 1830. Syn. *Stenocarpus* and *Agnostus sinuatus*.

Stenochi'lus. From *stenos*, narrow, and *cheilos*, a lip; alluding to the narrow lip of the flower. Nat. Ord. *Myoporaceæ*.

A genus of green-house, evergreen Australian shrubs, with alternate leaves and red, scarlet, or yellow flowers. They thrive best in a compost of sandy loam and peat, and are readily increased by cuttings. This genus is placed by Bentham and Hooker under *Eremophila*.

Stenochlæ'na. From *stenos*, narrow, and *chlania*, a cloak; in reference to the arrangement of the sori. Nat. Ord. *Polypodiaceæ*.

A genus of Ferns having two-formed fronds, the sterile ones pinnate, the fertile ones contracted, and either pinnate or bi-pinnate, borne on scandent rhizomes. They are natives principally of India and the Pacific Islands. Though very distinct looking, this genus is now included under *Acrostichum* and *Lomaria*, by many botanists.

Stenome'sson. From *stenos*, narrow, and *meson*, the middle; the flowers contracted in the middle. Nat. Ord. *Amaryllidaceæ*.

A genus of very pretty, half-hardy South American bulbs, with orange, scarlet and yellow flowers, in umbels on a slender scape. The bulbs may be planted out in early spring in a moist situation, and they will soon come into flower. They are propagated by offsets and require perfect rest during winter. Introduced from Peru in 1843.

Stenorhy'nchus. A genus of terrestrial Orchids, now included under *Spiranthes*.

Stenota'phrum. Australian Buffalo Grass. From *stenos*, narrow, and *taphros*, a trench; referring to the cavities in the rachis in which the spikelets are seated. Nat. Ord. *Graminaceæ*.

A small genus of creeping, radicant grasses, inhabiting tropical regions, mostly near the sea. *S. Americanum*, the only species in cultivation, is a curious perennial grass, with flattened stems and leaves. A variegated variety has leaves two to four inches long, freely striped with creamy white, and is an excellent basket plant. It is known in cultivation as *Stephanophorum glabrum variegatum*.

Stephana'ndra. From *stephanos*, a crown, and *aner*, *andros*, a male; alluding to the disposition of the stamens. Nat. Ord. *Rosaceæ*.

S. flexuosa, the only described species, is a hardy, deciduous shrub, with small white flowers, in corymbose racemes or panicles, introduced from Japan in 1870. It is closely allied to the shrubby Spireas, and is propagated by cuttings.

Stepha'nia. Named in honor of *Professor F. Stephan*, of Moscow. Nat. Ord. *Menispermaceæ*.

A small genus of climbing plants, natives of tropical Asia, Africa and Australia. The species are well worth cultivating on account of the beauty of their yellow or orange-colored flowers, which are disposed in simple or compound umbels. They thrive in a compost of sandy peat and loam, and are readily increased by cuttings.

Stephano'coma. From *stephanos*, a crown, and *kome*, hair; referring to the crown-like pappus. Nat. Ord. *Compositæ*.

S. carduoides, the only species, is a Thistle-like herb, with yellow flower-heads. Introduced from South Africa in 1864; known also as *Stobæa sphærocephala*.

Stephanopho'rum. See *Stenotaphyrum*.

Stephanophy'sum. From *stephanos*, a crown, and *physa*, a bladder; alluding to the inflorescence. Nat. Ord. *Acanthaceæ*.

A genus of tropical herbaceous plants, natives of Central America and Africa. The flowers are mostly scarlet, produced in axillary clusters. They are very rarely cultivated. This genus is often included with *Ruellia*.

Stephano'tis. Madagascar Chaplet Flower, Madagascar Jasmine. From *stephanos*, a crown, and *otis*, eared; the ear-like processes on the crown of the stamens. Nat. Ord. *Asclepiadaceæ*.

These noble green-house climbers grow with great freedom when allowed sufficient

root room. They may either be planted in the border of the house and trained over the pillars and roof, or placed in a large pot having a good-sized trellis attached to it. In either position the effect produced by their deep green and ample, fleshy leaves, enriched by numerous clusters of pure white, waxy flowers, is, perhaps, unsurpassed. The flowers of *S. floribunda* have a strong, delicious perfume, and are much valued by the bouquet-makers. This species was introduced from Madagascar in 1830, and is the only one generally cultivated. It is much subject to the insect known as Mealy Bug, and to keep it in health this insect must be sponged off the stems and leaves as soon as it is seen. Propagated by seeds or cuttings.

Stephenso'nia. A garden name of *Phœnicophorium*, more correctly *Stevensonia*.

Stercu'lia. From *Sterculius*, a god, derived from *stercus*, dung; the flowers and leaves of some of the species are fœtid. Nat. Ord. *Sterculiaceæ*.

A genus of considerable extent, widely dispersed through the tropics of both hemispheres, occurring most abundantly, however, in Asia and the Asiatic Islands, more sparingly in America and Africa, and rarely in Australia. Nearly all the species are trees, sometimes of considerable size. The seeds or nuts of some of the species are edible. *S. urens* yields a valuable gum, and bags used for the conveyance of rice and other merchandise are made from *S. villosa* by soaking logs of the trunk or large branches for a few days, and then stripping off the bark entire and sewing up the bottoms. *S. rupestris*, the Bottle Tree of Australia, introduced to cultivation in 1880 under the name of *Delabechea rupestris*, forms a pretty green-house shrub, the trunk often swelling to a large size—whence the common name. Several other species are in cultivation and are propagated by cuttings.

Sterculia'ceæ. A natural order of soft-wooded herbs, shrubs, or trees, mostly natives of the warmer parts of the world. They contain an abundant mucilage combined in the old bark of the woody species, with a bitter astringent matter, and are emetics and stimulants. From the dried and split cotyledons of the seeds of *Theobroma cacao*, Chocolate is manufactured. To this order also belong the Baobab Tree, *Adansonia digitata*; the Silk-cotton Tree, *Bombax Ceiba*; and the Durion Tree, *Durio Zebethinus*, the fruit of which is highly esteemed. These may be named as examples of the character of the order, which contains about forty-six genera, and over five hundred species.

Sterile. Barren. A male or staminate flower is commonly said to be sterile.

Steripho'ma. From *steriphoma*, a foundation; in allusion to the large fruit stalk. Nat. Ord. *Capparidaceæ*.

A genus of shrubby plants, natives of Peru, New Grenada, Venezuela, and the Trinity Islands. The flowers are large and showy, borne in terminal racemes with thick peduncles. *S. cleomoides* (Cleome-like), the only species yet in cultivation, is well worth growing for the beauty of its yellow flowers. It was introduced from Caraccas in 1823, and is propagated by cuttings of the young wood. Syn. *Stephania*.

Sternbe'rgia. Mount Etna Lily. Named in honor of *Count Caspar Sternberg*, a celebrated German botanist. Nat. Ord. *Amaryllidaceæ*.

This genus is usually known as *Amaryllis lutea*, and is sold as such by the seedsmen. There are only a few species, and but little difference between them; none that an amateur would be likely to notice. They are perfectly hardy, and flower in the autumn before the leaves start. The flowers are pure golden yellow, much like a Crocus, but larger, and the petals more fleshy. In the latitude of New York the bulbs should have a generous covering of salt hay or coarse litter before the ground freezes hard in the early winter. They are natives of the south of Europe and Africa. Introduced in 1596.

Steu'dnera. Named after *Dr. Steudner*, of Gorlitz, a German botanist. Nat. Ord. *Aroideæ*.

A small genus of stove-house perennials, closely allied to Colocasia. *S. colocasiæfolia*, and its variety, *S. c. discolor*, are the only members of this genus yet introduced. Like many plants of the same family they require a moist, warm atmosphere when growing, and a season of rest, when water must be almost entirely withheld. They were introduced from Burmah in 1874, and may be increased by suckers, or by division of the root-stock.

Stevenso'nia. Named for Governor Stevenson, at one time governor of the Island of Mauritius and its dependencies. Nat. Ord. *Palmaceæ*.

S. grandifolia is a synonym of the Palm described as *Phœnicophorium Schellarum*. It is also known as *Areca Schellarum* and *Astrocaryum Borsignyanum*. (See *Phœnicophorium*.)

Ste'via. In honor of *Peter James Esteve, M.D.*, Professor of Botany at Valencia. Nat. Ord. *Compositæ*.

An extensive genus of green-house perennials, nearly all natives of Mexico, and chiefly white-flowered. *S. compacta*, early-flowering, and *S. serrata* are grown in large quantities by the florists of New York for cut flowers for early winter use. Prof. Gray, in "Field and Garden Botany," describes *S. serrata* under the name of *Piqueria trinervia*, stating that it is largely cultivated for winter blooming, etc. The botanical descriptions of both seem to agree, only that *Piqueria*, according to Gray, is an annual, and according to Nicholson, in his "Dictionary of Gardening," a perennial and hardy. The plant we have so long known as *Stevia serrata* is strictly perennial, and in this climate quite tender. *S. serrata variegata* has beautiful white and green foliage, the white predominating, and it is now used very largely as a white-leaved plant for massing. By pinching or cutting back, it can be kept at any height from one to three feet. Its flowers are equally useful as the green-leaved variety. The species are all of easy culture, and are propagated by cuttings.

Stichus. A term which, used in Greek compounds, denotes a rank or row; as Distichous, two-ranked.

Sti'fftia. Named after *A. J. Stifft*, an Austrian physician. Nat. Ord. *Compositæ*.

A genus of glabrous trees or shrubs, natives of Brazil and Guiana. *S. chrysantha* is a showy, evergreen shrub, with orange-colored flower heads two inches in diameter. It requires a well-drained, light, airy situation, and is propagated by cuttings of the young wood.

Stigma (pl. **Stigmata**). That surface of a style, usually at its extremity, to which the pollen adheres when it fertilizes the ovules.

Stigmaphyl'lon. From *stigma*, a stigma, and *phyllon*, a leaf; alluding to the stigmas being expanded into a sort of leaf. Nat. Ord. *Malpighiaceæ.*

A genus of about fifty species of handsome tropical trees and shrubs. Some of the latter are climbers. They are natives of Brazil and the West Indies. A few of the species are cultivated for the sake of their fine yellow flowers and beautiful foliage. *S. ciliatum* (Golden Vine) is a very free-flowering, handsome, green-house climber, bearing clusters of beautiful, fringed, yellow, Oncidium-like flowers during the early winter months. It is freely propagated by cuttings of the ripened wood.

Stigmatose. When the stigma is long, lateral, or on one side of the style.

Stilli'ngia. Tallow-tree. Named after *Dr. B. Stillingfleet*, an English botanist. Nat. Ord. *Euphorbiaceæ.*

S. sebifera, the Tallow-tree, is a native of China and the adjacent islands. This tree is highly valued for its fruits, which are about half an inch in diameter, and contain three seeds thickly covered with a fatty substance which yields the tallow. This is obtained by steaming the seeds in large caldrons, then bruising them sufficiently to loosen the fat without breaking the seeds, which are removed by sifting; and the fat is afterwards made into flat, circular cakes, and pressed in a wedge-press, when the pure tallow exudes in a liquid state, and soon hardens into a white, brittle mass. This tallow is very extensively used in China for candle-making. The tree yields a hard wood, used by the Chinese for printing blocks, and its leaves are employed for dyeing black. Syn. *Excæcaria.*

Sti'pa. Feather Grass. From *stipe*, feathery or silky. Nat. Ord. *Graminaceæ.*

S. pennata, the species chiefly grown as an ornamental plant, is a hardy, herbaceous perennial, a native of Europe, and is grown for the sake of its beautifully feathered beards, which are used for winter bouquets, both in the natural color and dyed. This species is propagated by division or from seeds sown in spring.

Stipe. The stalk of Ferns up to the first pinnæ; or the stem of a Fungus.

Stipules. Processes or appendages of various kinds, usually leaf-like, arising from the base of a leaf, usually from its sides; leaf-like appendages at the base of the petiole.

Stitchwort. A common name for *Stellaria Holostea.*

Stobæ'a. In honor of *Dr. Stobæus* of Lund, a friend of *Linnæus.* Nat. Ord. *Compositæ.*

A genus of thistle-like herbs, with winged, spinous branches, and spiny-toothed leaves. *S. purpurea*, known also as *Berkheya purpurea*,

has large flower-heads something like a Passion-flower in outline, of a dull white color, tinged with purple. They are borne from within a foot of the ground to the tops of the stalks, which are over three feet high. This species and *S. sphærocephala* (syn. *Stephanocoma*) with bright yellow flower-heads, are exceedingly showy and handsome, hardy perennials.

Stock. Synonym for a race. A plant to which a graft or bud has been applied. A caudex, rhizome, or root-like base of a stem.

Stock. Cape. A common name for the genus *Heliophila.*

Night-scented. *Mathiola tristis.*

Virginian. The popular name of *Malcomia maritima.*

Stock and **Stock-Gilliflower.** See *Matthiola.*

Stokes' Aster. *Stokesia cyanea.*

Sto'kesia. In honor of *Dr. Jonathan Stokes*, the coadjutor of Withering in his arrangement of British plants. Nat. Ord. *Compositæ.*

S. cyanea, Stokes' Aster, the only known species, is a pretty little herbaceous, perennial evergreen, found rarely in the wet pine barrens of South Carolina and westward. Flowers bright blue, produced in large terminal heads. This beautiful late-flowering plant is now largely grown in England to supply the cut-flower market with blue flowers in autumn. It is readily increased by division or from seeds.

Stole, Stolon. A sucker; a lax trailing branch given off at the summit of the root, and taking root at intervals, whence fresh buds are developed.

Stoloniferous. Bearing or propagated by stolons, runners, etc.

Stoma, Stomata. An organic aperture in the skin of a plant, by means of which respiration is maintained, to provide for which it is always placed over a cavity in the parenchyma beneath it.

Stone. A hard body found in certain fruits, which are generally known as stone-fruits, and produced by the ossification of the endocarp, or lining of the fruit.

Stone Crop. See *Sedum.*

Stone Pine. A common name for *Pinus pinea.*

Stool. A plant from which "layers" are propagated, by bending its branches into the soil, so that they may take root.

Storax. See *Styrax.*

Stork's-Bill. See *Pelargonium.*

Stramo'nium. See *Datura.*

Stratio'tes. Water Soldier. From *stratiotes*, a soldier; in allusion to its long, sword-like leaves. Nat. Ord. *Hydrocharidaceæ.*

A genus of hardy aquatics. *S. aloides*, a native of England, is a very singular plant. It resembles our Aloes in miniature; hence its specific name. It is attached to the mud by a cord-like runner, or is suspended free in the water, elevating only its flowers and a portion of its leaves above the surface. It increases very fast, and will grow freely in the aquarium. It increases too fast for small ponds, as it will soon choke out all other plants.

Strava'dium. From *tsgeria samstravadi*, the Malabar name of one of the species. Nat. Ord. *Myrtaceæ.*

A genus of ornamental trees, natives of Polynesia and the East Indies. Their showy red or white flowers are borne in very long pendulous racemes. The genus is now included by Bentham and Hooker under *Barringtonia*.

Strawberry. See *Fragaria*. Strawberries will grow on almost any soil, but it is all-important that it be well drained, either naturally or artificially; in fact, this is true for the well-being of nearly all plants, as few plants do well on soils where the water does not freely pass off. Thorough culture requires that the soil should be first dug or plowed, then spread over with at least three inches of thoroughly rotted stable manure, which should be dug or plowed under, so far as practicable, to mix it with the soil. If stable manure cannot be had, artificial manure, such as ground bone dust, etc., should be sown on the dug or plowed ground, thick enough to nearly cover it, then harrowed or chopped in with a fork, so that it is well mixed with the soil to at least six inches in depth. This, then, is the preliminary work before planting, to insure a crop the next season after planting—in nine or ten months. The plants must be such as are layered in pots, and the sooner they are planted out after the 15th of July, the better, although, if not then convenient, they will produce a crop the next season even if planted as late as the middle of September; but the sooner they are planted the larger will be the crop. They may be set from *pot layers* either in beds of four rows each, fifteen inches apart, and fifteen inches between the plants, leaving two feet between the beds for pathway; or be set out in rows two feet apart, the plants in the rows fifteen inches apart; and if the plants are properly set out (care being taken to firm the soil around the plant, which is best done by pressing the soil against each plant with the foot), not one plant in a thousand of Strawberry plants that have been grown in pots will fail to grow. For the first three or four weeks after planting nothing need be done except to hoe the beds, so that all weeds are kept down. Be careful to do this once in every ten days; for if the weeds once get a start, it will treble the labor of keeping the ground clean. In about a month after planting they will begin to throw out runners, all of which *must be pinched or cut off as they appear*, so that by the end of the growing season (1st of November) each plant will have formed a complete bush one foot or more in diameter, having the necessary matured "crowns" for next June's fruit. By the middle of December the entire beds of Strawberry plants should be covered up with salt-meadow hay (straw, leaves or anything similar will do as well) to the depth of two or three inches, entirely covering up the plants and soil, so that nothing is seen but the hay. By April the plants so protected will show indications of growth, when the hay around each plant is pushed a little aside, to assist it in getting through the covering, so that by May the fully developed plant shows on the clean surface of the hay. This "mulching," as it is called, is indispensable to the best culture, as it protects the plants from cold in winter, keeps the fruit clean, keeps the roots cool by shading them from the hot sun in June, and, at the same time, saves nearly all further labor after being once put on, as few weeds can push through it. By this method we prefer to plant new beds every year, though, if desired, the beds once planted may be fruited for two or three years, as by the old plans; but the fruit the first season will always be the largest in size, if not greatest in number. Another advantage of this system is that, where space is limited, there is quite time enough to get a crop of Potatoes, Peas, Beans, Lettuce, Radishes, or, in fact, any summer crop off the ground first *before* planting the Strawberries, thus taking two crops from the ground in one year, if desired, and there is also plenty of time to crop the ground with Cabbage, Cauliflower, Celery, or other fall crop *after* the crop of Strawberries has been gathered. The plan of getting the pot layers of Strawberries is very simple. Just as soon as the fruit is gathered, if the beds are well forked up between the rows, the runners or young plants will begin to grow, and in two weeks will be fit to layer in pots. The pots, which should be from two to three inches in diameter, are filled with the soil in which the Strawberries are growing, and "plunged" or sunk to the level of the surface; the Strawberry layer is then laid on the pot, being held in place with a small stone. The stone not only serves to keep the plant in its place so that its roots will strike into the pot, but it also serves to mark where each pot is; for, being sunk to the level of the surface, rains wash the soil around the pots, so that they could not well be seen unless marked by the stone. In ten or twelve days after the Strawberry layers have been put down the pots will be filled with roots. They are then cut from the parent plant, placed closely together, and shaded and watered for a few days before being planted out. Some plant them out at once when taken up, but, unless the weather is very suitable, some loss may occur by this method; by the other plan, however, of hardening them for a few days, not one in a thousand will fail. Strawberries for field culture are usually planted from the ordinary layers, either in August and September in the fall, or in March, April or May in the spring. They are usually planted in rows, two to three feet apart, and nine to twelve inches between the plants. In planting, every plant should be well firmed, or great loss is almost certain to ensue, as the Strawberry is a plant always difficult to transplant. They are usually worked by a horse-cultivator, and generally two or three crops are taken before the beds are plowed under; but the first crop given (which is in the second year after planting) is always the best. The same care must be taken as in planting by pot layers, the ground must be kept clear of weeds, and the runners pinched or cut off to make fruiting crowns. By the usual field method of culture, it will be seen that there is a loss of one season in about three; for in the year of planting no fruit, of course, is produced, and for this reason we incline to the belief that, if a portion were set aside to produce early plants, so that pot layers could be set out by the 15th of July, a full crop of the finest fruit could be had every season, and with less cost, we think; for the only labor after planting is to keep the ground clean and pinch off the runners from July to October, with the certainty of getting a full crop

next June, or in less than a year from the time of planting, while by planting by ordinary layers, if planted in August, we have three months of fall culture, and six or seven months of the next summer's culture, before a crop is produced. Again, if the crop is continued to fruit the second or third year, every one who has had experience with the nature of the plant knows that the labor of keeping the plants free from weeds is enormous; while by the pot-layering method of taking a fresh crop each year, all such labor is dispensed with. It is useless to name any special varieties of the Strawberry as best to cultivate. We have now thousands under cultivation, and such kinds as we might now name as the best will, a few years hence, be superseded. It is best to select from the annual catalogues of some responsible nurseryman or florist, where descriptions are usually fully given.

Strawberries. FORCING. In response to a request to John G. Gardner, of Jobstown, N. J. (who is one of the most successful growers of forced Strawberries), for his system and practice, he sends the following, under date of December 19th, 1888:

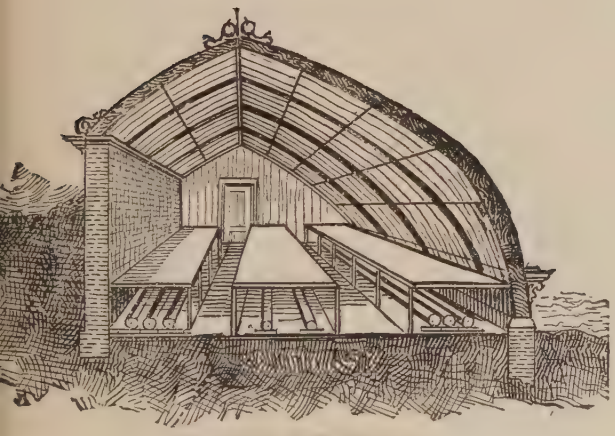
"In giving you in detail the system of 'Forcing Strawberries' as practiced at Jobstown, I would first say that those who wish to force Strawberries should make themselves thoroughly familiar with the natural conditions of the plants, making a close examination of the construction of the perfect flowers, the calyx, corolla, stamens, and pistils, forming, as they do, in periods successively as named above; noting the atmospheric influences under which they develop to fulfill the part nature has ordained for them. The operator having taken his observations closely, will have one of the principal points in forcing Strawberries at hand; knowing how the complicated parts of a perfect Strawberry flower are formed under natural conditions, he will be able to provide artificial means under glass, to produce healthy flowers.

"My best results have been from good, strong plants, layered from one year old plants, as early as it is possible to get them, which is about the 20th of June, in this section. The runners are layered in three-inch pots, partially filled with well-rotted manure, filled up with good soil, and plunged level with the ground, the point of the runner being slightly inserted in the soil, and fastened down with a crook of bent wire, and the soil kept moist by watering; good healthy runners will be ready to shift into fruiting pots in two weeks. I never take more than two layers from one runner. For fruiting I use six-inch pots, give good drainage, and pot firmly in two parts of good loam to one of rotted manure, one plant in a pot, placing them when potted close together in an open spot upon an even surface of coal ashes. After being potted three weeks, and having made good growth, I place them six inches apart, and remove all runners that show. When the pots have become full of roots, liquid manure is given twice a week, and abundance of water is given at all times while they are making their growth, and after every hot day they are sprinkled overhead with water. By the middle of September the plants will have formed good plump centres, or crowns, and the foliage from the centre will be diminishing in size; all

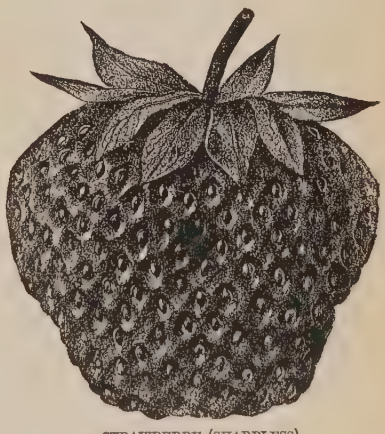
that is necessary at this stage is to keep them well supplied with water, as the pots being full of roots they will dry out quickly. Under favorable circumstances, by the middle of October, the plants in this section will have ceased to make growth, and the cool nights will have helped to form flower buds in well matured and plump crowns. Some seasons are much more favorable than others, as, for instance, when we get a cool fall, with rains and slight frosts, the growth is checked, and the development of the scale-like forms in the centre of the crowns becomes much more rapid, and takes on the form of flower-buds. Plants with single crowns are the best to select for very early berries for Christmas and New Year's. The operator, after making his selection, must sacrifice a few plants, cutting them clear through the centre of the crowns with a sharp knife, to make an examination of the flower-buds. If, by the 15th of October, they are the size of a small pea, it will be an easy matter to force them for Christmas, but if, on the other hand, the flower-buds are no larger than the head of a pin, then the process of forcing must be cooler and slower. My treatment of plants in the former stage —with well-advanced flower-buds—is to remove a few of the lower leaves, taking care not to damage the centre of the plants, and dip each plant in a solution of whale oil, soap, sulphur and tobacco water, to clear them of Red Spider, which is the worst enemy of the Strawberry forcer, oftentimes gaining such headway during the flowering season—at which time the air has to be kept perfectly dry—that the whole crop is ruined. The pots are placed upon shelves or benches not farther than two feet from the glass. In front of the outside row of pots which is exposed to the full sun, a board about six inches wide is placed on edge to prevent the roots from getting scalded, and the pots from drying out too rapidly. The foliage is sprinkled over with the syringe every clear morning, and a free circulation of air is given; but the house is partially closed during the afternoon, and a moist atmosphere, at a temperature of 55° to 60° is maintained until sundown. Air is then given freely to reduce the temperature to 45° at night, as nearly as possible, as a high night temperature has a tendency to push the foliage ahead of the flower-buds. In dull days a temperature of 50° is maintained. By the time the flower-buds appear above the crown of the plants, a night temperature of 50° may be kept and continued until the crop is set. The day temperature, when in flower, must not exceed 55°, with a free circulation of air and the atmosphere perfectly dry, care being taken not to slop water around when watering the plants. These conditions must be kept up for two weeks to make a perfect set of well-formed fruit. The receptacle which becomes the fruit will not be hurried, and the pistils will not mature to receive the pollen under a warm damp air. The operator must be sure that the varieties he forces are good pollen-bearing sorts, and if a pistiliferous variety, some other kinds which have plenty of stamens must be forced with it. Sharpless is one of the best. To make sure of a good set of perfect fruit, I use bees as fertilizing agents, setting the hives in the houses on the benches or floors, keeping the mouth of the hive from

STRAWBERRY (MAY KING).

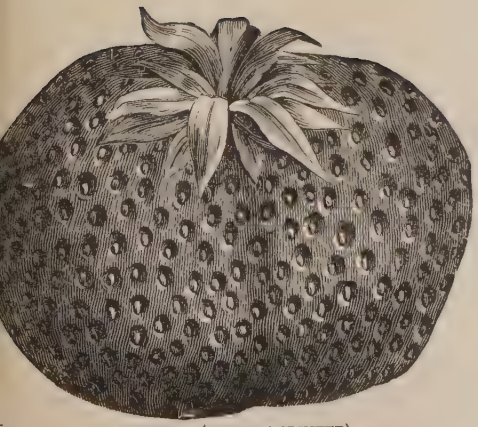
STRAWBERRY (LAYERING IN POTS).



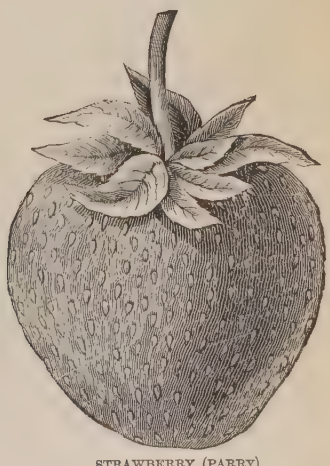
STRAWBERRY FORCING HOUSE.



STRAWBERRY (SHARPLESS).



STRAWBERRY (CRIMSON CLUSTER).



STRAWBERRY (PARRY).

STREPTOSOLEN JAMESONI.

SYMPHYTUM ASPERRIMUM

STUARTIA VIRGINICA.

STATICE BONDUELLI.

STATICE INCANA HYBRIDA.

four to six feet from the glass, so as to give the bees a chance to fly straight out without striking the glass. I place the hives where the sun will strike them, and the bees will soon come out when the sun shines, which is just the proper time, as, when the air is dry, the pollen will move more freely. After the bees have been in the house a few days they become accustomed to the glass, and work splendidly. I find them the best help in fertilizing any fruits that I force, using the same bees to set the early Nectarines, Peaches, Cucumbers, etc. Unfortunately they are of no assistance with the Tomato, which they will not touch, and which have to be gone over every day and given a sharp knock with a padded stick to start the pollen. I do not, however, use the same hive two years in succession, for, as the hives are introduced during December and remain in until April, the crop of young bees hatch out, fly against the glass or get into the dew on the foliage, many get killed, and thus weaken the hive. If only used for one crop it would not hurt them one particle, if, when through with them, they are put outside again. Many use a camel's hair brush for fertilization, and if it is carefully used, it is very successful. Great care, however, must be taken to regulate the pressure during the operation, and to see that the brush does not get clogged up and stiff with the pollen, in which case the pistil and receptacle would be damaged, and deformed fruit the result. I have used bees, and nothing else, for the last eight years, and can always depend on a good set of perfect fruit. After eight good berries have formed, I clip off the remaining flowers, at the same time supporting the fruit stems and holding back the foliage with bent wire or birch twigs, to give the berries the full benefit of the sun and light. The temperature may now be gradually raised to 65° and 70° with sun-heat, great care being taken not to let the plants suffer for water until they commence to color, and then it must be partially withheld, only giving enough to keep the foliage from wilting. The best time to gather the fruit is in the early morning. The finishing and ripening of Strawberries during the months of January and February, is a difficult task, as at times we get a whole week of bad weather, sunless and wet days, when it may happen that you have a batch of plants just coloring their fruit. Many good houses of Strawberries have been lost at this stage from rotting, and to make safe against this, a cement floor is necessary —as I have here at Jobstown—thus preventing the dampness that would naturally arise from an earthen floor. I also use charcoal and lime in very dull, rainy weather, having crates of charcoal twenty by twenty-four inches and six inches deep, which I place throughout the house, and place pieces of charcoal on the tops of the pots. The lime is laid around on the floor, and by these agents I have brought a crop of berries through in February when we had only seventeen hours of sunshine in a week. Growing, as I do, 10,000 to 14,000 plants in pots every year, it would be a great cost of labor to store them as recommended by some growers. What I do here is to leave them where they have grown (outside), placing two or three inches of Oak leaves upon them the last week in November, or earlier if we get

severe frosts, covering all with rye straw only enough to keep the leaves from blowing off. As plants with a few healthy green leaves when taken in for forcing give the best results, I try to strike a thaw or rain for this operation, when the pots will easily let loose from the frozen earth below, allow the Oak leaves to remain upon each plant, and placing them in cold frames allow them to thaw out in perfect darkness. When thawed out the leaves are removed, and the plants are prepared for the forcing-house as described above.

"With regard to recommending varieties for forcing, I cannot with safety do so, as circumstances must be considered. I am situated on a light sandy soil, while others will have clay to deal with. I have had the best results from those varieties that grow most freely with me in the garden. Keen's seedling and Sir Charles Napier, two imported sorts, I have forced in good form, and the Keen's seedling the earliest of all—but in dry, hot summers I could not get growth enough on this variety to produce strong, healthy runners. In heavy soils the result might be better. The variety I have found to stand best in our soil is the Sharpless, and force it for the main crop, and also use it as a pollen-bearing sort. Cumberland Triumph has done well here, as has also the Parry, but the berry of the latter is soft, and is a bad shipper. Seth Boyden and Triomphe de Gand have also done well, and Champion has proved a good early variety. I have made trials of some of the newer sorts, not enough, however, to give an opinion as yet; but one thing is certain, if you cannot get a good healthy growth on the plants out of doors, you cannot get plants from them in proper condition to force, so that whatever variety the operator selects, he must be sure of a healthy growth from which to secure his layers. I change my stock from farther north every two years."

Strawberry-Bush. A common name for *Euonymus Americanus*.

Strawberry Geranium. See *Saxifraga*.

Strawberry Shrub. See *Calycanthus floridus*.

Strawberry Spinach. *Blitum capitatum*.

Strawberry Tomato. See *Physalis Alkekengi*.

Strawberry Tree. See *Arbutus*.

Streli'tzia. Bird of Paradise Flower. Named in honor of the Queen of George III., Charlotte of Mecklenburgh-Strelitz. Nat. Ord. *Scitamineæ*.

These are handsome plants, with large, pale-green leaves and singular, richly-colored flowers. *S. Reginæ* is the most common, and perhaps the most beautiful; its flowers are brilliant orange and purple. It is usual to grow the species as hot-house plants, but they succeed almost equally well in the greenhouse, placed in large pots of rich loam and kept in a light part of the house at all times, except between the months of June and September, when they thrive best out of doors. They will thus grow and flower finely. *S. Nicolai* is a splendid arborescent species, long cultivated in European gardens, and, until 1858, when it flowered at St. Petersburg, confounded with another South African species, *S. Augusta*. The geographical range of the latter, and the exact locality where the former species grows spontaneously, are still

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unknown. The species are all natives of the Cape of Good Hope, and were first introduced in 1773. Propagation is slow, and is effected by suckers, or from seed when it can be obtained.

Strepta'nthera. From *streptos*, twisted, and *anthera*, an anther: alluding to the shape of the anthers. Nat. Ord. *Iridaceæ*.

A small genus (two species) of dwarf, bulbous, green-house plants; natives of South Africa. The species are very pretty when in flower, and are increased by offsets.

Strepta'nthus. From *streptos*, twisted, and *anthos*, a flower; alluding to the twisted claws of the petals in some of the species. Nat. Ord. *Cruciferæ*.

A genus of hardy, glabrous, annual or perennial herbs, natives of western North America. Two species, *S. hyacinthoides* and *S. maculatus*, both annuals, have been introduced; they grow from one foot to three feet in height, and when in bloom their deep purple or shaded flowers are very beautiful.

Streptoca'rpus. Cape Primrose. From *streptos*, twisted, and *carpos*, a fruit; referring to its long, twisted seed-pods. Nat. Ord. *Gesneraceæ*.

Very neat and pretty dwarf plants with velvety leaves and lilac flowers, produced freely all the summer. They may be grown in the green-house, or used as bedding plants for the open border, where, in a warm situation, they will produce a multitude of flowers. They will bear almost any treatment, but do best in pots of light, sandy soil, with plenty of heat in the early stages of growth, say from March to May, after which a cool house or the open air will preserve their flowers for a long time, and, being produced in rapid succession, the plants will be quite ornamental for at least four or five months. They are all interesting plants, and should have rest during winter, like other green-house, herbaceous perennials. They were first introduced from Natal in 1854, and are propagated by division or by seeds.

Stre'ptopus. From *streptos*, twisted, and *pous*, a foot or stalk; alluding to the peduncles, which are abruptly bent near the middle. Nat. Ord. *Liliaceæ*.

A genus of perennial, herbaceous plants, natives of Europe, Asia and North America. Three or four of the species are in cultivation, and are interesting plants of easy management. Propagated by seeds or division.

Streptoso'len. From *streptos*, twisted, and *solen*, a tube; referring to the form of the corolla-tube. The only species, *S. Jamesonii* (known also as *Browallia Jamesonii*), is a very handsome, green-house, evergreen shrub introduced from Columbia in 1847. It bears its exceedingly showy, bright orange-colored flowers in large, terminal panicles, and is of easy culture; propagated by cuttings.

Striate. Marked with fine longitudinal lines, or diminutive grooves or ridges.

Strict. Very straight and upright.

Strigose. Covered with sharp, close-pressed, rigid hairs.

Stringy Bark Tree. A name given to several species of *Eucalyptus*.

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Striped Squill. A common name for *Puschkinia scilloides*.

Strobila'nthes. From *strobilus*, a cone, and *anthos*, a flower; alluding to the form of the inflorescence.

A large genus of *Acanthaceæ*, comprising herbs and shrubs, scattered over tropical Asia and Africa, having blue, violet, or white flowers and generally opposite leaves. A number of the species are very beautiful, showy, green-house plants of easy culture, and merit a place in every collection. They are best known in cultivation as *Goldfussias*, and are all easily increased by cuttings.

Strobile, Strobilus. From *strobilos*, a Fir-cone. A scaly fruit composed chiefly of a number of bracts that overlap each other like the slates on a roof. Lindley defines it as "an imbricated, scaly inflorescence; a collection of hard scales representing distinct flowers, arranged spirally but closely imbricated." The word Cone is employed with almost the same meaning as Strobile, though in general almost restricted to the fruits of the *Coniferæ*, while the latter word also includes the fruits of the Hop and of a few other plants.

Stroma'nthe. From *Stroma*, a couch, and *anthos*, a flower; alluding to the form of the inflorescence. Nat. Ord. *Scitamineæ*.

A small genus of handsome, stove, perennial plants, natives of the East Indies and Brazil. One of the most useful decorative plants. *S. sanguinea* is better known in green-houses as *Maranta* or *Phrynium sanguineum*.

Stropha'nthus. The name derived from the Greek, *strophos*, a twisted cord or rope, and *anthos*, a flower; is expressive of the chief peculiarity of the flowers in this genus of *Apocynaceæ*, which comprises about eighteen species of shrubs or small trees, some of which are climbing. They are natives of tropical Asia and Africa. Several of the species are cultivated for the pretty appearance and singularity of their flowers. They are of easy management and are increased by cuttings.

Struma. A cushion-like swelling.

Struma'ria. From *struma*, a tubercle, the style is swollen in the middle. Nat. Ord. *Amaryllidaceæ*.

A small genus of interesting bulbs from the Cape of Good Hope. The flowers are red, white or pink, somewhat resembling the *Nerine*, to which this genus is allied. They are of dwarf habit, well adapted for green-house culture, and succeed with but little care, the main requisite being to secure a good growth of foliage after flowering, as the flowers for the coming season will correspond in size and strength to the growth of leaves. They were first introduced in 1812, and are propagated by offsets.

Stru'thiola. From *Struthion*, a little sparrow; alluding to the resemblance of the seeds to a beak. Nat. Ord. *Thymelaceæ*.

A genus of about twenty species of pretty, heath-like, green-house shrubs, natives of South Africa. Several species are in cultivation, of which *S. erecta*, with white, and *S. virgata*, with pink flowers, are the most desirable. They are easily increased by cuttings of the half-ripened shoots.

Struthio'pteris From *struthios*, an ostrich, and *pteris*, a fern; resemblance of the leaves

or fronds to its feathers. Nat. Ord. *Polypodiaceæ.*

A small genus of hardy Ferns, with strong, erect-growing fronds. *S. Germanica*, popularly known as the Ostrich Fern, is common in most of the Northern States. The species are also to be found in India and Japan. Professor Gray makes *S. Pennsylvanica*, Willd., and *Onoclea Struthiopteris*, L., synonymous with *S. Germanica.*

Strychnine Plant. The common name of *Strychnos Nux-vomica.*

Stry'chnos. Nux Vomica. The Greek name of the *Solanum.* Nat. Ord. *Loganiaceæ.*

A small genus of evergreen trees, natives of the East Indies. *S. Nux-vomica* is well known from the seeds that bear that name, and which contain an active principle called *Strychnia*, a virulent poison. This species is a tree of moderate size, much branched, and covered with dark gray, smooth bark. The flowers are small, bell-shaped and nearly white. The tree has nothing of special interest, if we except its power for evil. The seeds of *S. potatorum* show a marked contrast to the preceding. They are an important article of merchandise in the Indian bazaars, being sold for the purpose of clearing muddy water, the vessels containing the water being rubbed for a minute or two round the inside with one of the seeds; after which, by allowing the water to settle for a short time, however impure and muddy it may have been before, it becomes clear and wholesome.

Stua'rtia. Named after *John Stuart*, Marquis of Bute. Nat. Ord. *Ternstromiaceæ.*

A genus of very beautiful, hardy, deciduous shrubs, allied to the Camellia. It consists of three species, two of which, *S. Virginica* and *S. pentagyna*, are indigenous, being found from Virginia southward, while *S. pseudo Camellia* is a Japanese species of recent introduction. The commonest and best known species is *S. Virginica*, which, when fully grown, is a handsomely shaped bush, of rounded and spreading growth, and reaching from six to ten feet high. Its flowers are like a single Rose, about three inches across, the petals of which are of a soft creamy-white, surrounding a tuft of deep crimson stamens—a charming contrast to the pale green foliage. *S. pentagyna* (syn. *Malachodendron ovatum*) is a rather larger and taller growing shrub, but its flowers are very similar. *S. pseudo-Camellia* (syn. *S. grandiflora*) resembles the other two in growth, foliage and habit, but its flowers are larger, whiter, and have the stamens yellow instead of red. They are beautiful shrubs when in bloom, and merit a place in every collection of ornamental shrubs. Propagation may be effected by layering or by cuttings.

Stub-wort. An old name for *Oxalis Acetosella.*

Style. The part which bears the stigma; its use is to support the stigma in such a position as to favor polination.

Stylidia'ceæ. A small natural order of herbs or under shrubs, chiefly Australian, with a few species from New Zealand, the Straits of Magellan and tropical Asia. It is divided into four genera, and contains nearly one hundred species, of which *Stylidium* itself contains the great majority.

Styli'dium. From *stylos*, a column; the stamens and style are joined into a column. Nat. Ord. *Stylidiaceæ.*

A genus of evergreen and herbaceous plants from New Holland. They are all neat little green-house plants, each of the numerous stems producing a copiously-filled spike of small rose-colored flowers. They should be cut down annually after flowering, and require some care to preserve them free from mildew through the damp weather of winter. A light, airy shelf is the best preventive, and a sprinkling of sulphur on the affected parts will generally remove it. They were first introduced in 1824, and are propagated by seeds, and the shrubby kinds by cuttings of the young shoots.

Stylo'phorum. From *stylos*, a style, and *phero*, I bear; indicating one of the distinctive characters. Nat. Ord. *Papaveraceæ.*

A genus of hardy plants with perennial rhizomes, and yellow juice, one being indigenous, and the others found in India and Japan. *S. Japonicum*, a slender-growing plant, about a foot high, with yellow, Poppy-like flowers, introduced from Japan in 1840, is a very pretty species, and may be increased by seeds or by division. *S. diphyllum*, from western North America, much resembles it; so much so that Robinson, in his "English Flower Garden," mentions them as identical.

Stylosa'nthes. Pencil Flower. From *stylos*, a style, and *anthos*, a flower; alluding to the very long style. A genus comprising about fifteen species of uninteresting herbaceous plants, natives of Asia, Africa, North America and Brazil. They are seldom cultivated except in botanical collections.

Stypa'ndra. From *stype*, tow, and *aner*, *andros*, an anther; alluding to the downy appearance of the stamens. Nat. Ord. *Liliaceæ.*

A small genus of half-hardy, perennial herbs, with fibrous roots, natives of Australia. The blue flowers are borne in a loose terminal cyme, and the species will grow well in a cool green-house or frame, if protected in severe weather. They succeed best in a sandy loam, and are increased by division.

Styphe'lia. From *styphelos*, hard; referring to the wood. Nat. Ord. *Epacridaceæ.*

A genus of green-house, evergreen shrubs, harsh, erect, and low-growing. They have usually pink or scarlet flowers, axillary and drooping. *S. tubiflora* and a few other of the species are very beautiful plants, their showy flowers completely covering the stems, and remaining several weeks in perfection. They should be grown and propagated like the *Epacris.*

Styraca'ceæ. A natural order of trees or shrubs, mostly natives of the warmer parts of Australia, Asia and America, though a few species are indigenous. The two principal genera, *Symplocos* and *Styrax*, are considered by some botanists as types of two distinct orders, but are more generally regarded as tribes only of *Styracaceæ.* The two balsams, Storax and Benzoin, are derived respectively from *S. officinalis* and *S. Benzoin.* Several of the species are employed as tea and for dyeing yellow in the Himalayas. There are seven genera in the order, and over two hundred species. Among the smaller genera, *Halesia*, or the Snow-drop Tree, is the only one of general interest.

STY

Sty'rax. Storax. From the Arabic. Nat. Ord. *Styracaceæ.*

A genus of handsome, flowering, hardy, deciduous shrubs and low-growing trees, well adapted for the shrubbery border. Several of the species are common on the margins of swamps from Virginia southward. The most important species is *S. Benzoin,* a native of Borneo and Sumatra. It yields the resin called Benzoin, which is employed medicinally, and also in the manufacture of perfumes. It is used in the Roman Catholic churches in the composition of incense. *S. officinale,* a native of the Levant, yields a balsamic resin called Storax. Among some of the species of recent introduction is *S. serrulata* (syn. *S. Japonica*), known, from its white Giant Snow-drop-like blossoms, as "Snow-flake Flower." It is a shrub growing about four feet in height, blooming about mid-summer, and is hardy in the vicinity of New York. *S. Obassia* is one of the most attractive of the many hardy shrubs introduced within late years from Japan, where it is a native of the southern mountains of Kiusiu and Sikok. Siebold, who discovered it in Japan, attributes to it no other property but its scent of Hyacinth. The hardiness of this very ornamental shrub, or small tree, in our Northern States has not been entirely established yet. All are propagated freely from cuttings.

Sub. As a prefix; about, nearly, somewhat; as Sub-cordate, slightly cordate; Sub-rotund, roundish; Sub-axillary, just beneath the axil, etc.

Suberose. Corky in texture.

Subsoiling. This is indispensable to the best culture, either in the garden or on the farm. On soils having a clayey or hard-pan subsoil, the subsoil plow should be used at least every two years. It accomplishes the work of loosening and pulverizing, and thus admitting air to a depth of eighteen or twenty inches, or twice the usual depth turned up by the surface plow. In our own practice in our stiff clay soil, we use it nearly every alternate year. The subsoiler now used stirs, loosens and pulverizes the soil, but does not invert it, following immediately behind in the furrow made by the surface plow, of course, or the necessary depth could not be attained. The implement is made for one and two horses. On light sandy subsoils the one-horse size is sufficient, but for clay or hard-pan two powerful horses are necessary to get to the proper depth (see Plowing). When subsoiling is done by the spade it is called trenching (which see).

Sub-species. A term given to a rank lower than that of Species, but higher than that of Variety.

Sub-Tropical Garden. This term is applied to a portion of a lawn or flower-garden devoted during summer to plants arranged with the design of representing tropical vegetation. As many of the plants used are natives of tropical countries, they are only available during the warmest part of the season, but there are others of tropical aspect which are hardy, that are only valuable for associating with their more tender brethren. Next to location, the most important provision for such a garden, is shelter, as many of the most useful subjects would have their leaves torn

SUG

and disfigured if subjected to high winds. Shade and moisture are also necessary for many Tree and other Ferns, Cycads and Palms.

If the size of the garden will allow it, perhaps the best effect is accomplished by grouping the various plants, rather than planting them promiscuously, but individual taste must regulate design in arrangement. Many useful plants may readily be raised from seed each spring and planted out in rich soil about the first of June. Of these the various species of *Ricinus, Solanums, Nicotianas, Albizzia* (*Acacia*) *lophantha, Wigandias,* and varieties of *Zea,* are especially valuable, and as they are all rapid growers they make large specimens before autumn. Plants of *Ailantus glandulosus,* and *Catalpa bignonioides,* cut close down every spring are excellent subjects either for massing, or for single specimens. The various sorts of *Cannas* are indispensable for groups, or as solitary specimens *Colocasias, Amorphophallus* and any of the *Arum* family are all desirable. The most serviceable amongst Palms are *Livistona australis, L. chinensis, Phœnix dactylifera, Ptychosperma Cunninghamiana* (syn. *Seaforthea elegans*), *Chamærops humilis, C. excelsa* and *C. Fortunei. Cycas circinalis* and *C. revoluta, Musa Ensete,* and *M. superba,* are noble plants for this purpose, the Tree Ferns, *Alsophila australis* and *A. excelsa, Cyathea dealbata, Dicksonia antartica,* etc., may also be placed in sheltered and shady places with good effect. The various *Arundos, Arundinarias, Bambusas, Dracænas, Cordylines, Erythrinas, Aralias, Phorniums, Gynerium, Eulalias, Ficus,* etc., can also be used to excellent advantage.

Subulate, Subuliform. Awl-shaped; linear, tapering from a broadish base to a fine point; a long, narrow triangle.

Succise. Abruptly cut or broken off, or appearing to be so.

Succulent. Very juicy or pulpy.

Succulent Plants. Plants possessing thick, fleshy leaves, including numerous genera, very varied in habit. They are generally plants requiring protection, especially in winter, though a few are perfectly hardy. The natural orders *Cactaceæ* and *Ficoideæ* include a large number of Succulents, many being exceedingly curious, and others very beautiful. For carpet-bedding purposes many of the dwarf-growing species are invaluable, and are used in large numbers, more especially various species of *Sedum, Sempervivum, Agave, Aloe, Cotyledon, Echeveria, Crassula, Opuntia, Mesembryanthemum,* etc.

Succory. Another name for Chicory. See *Cichorium.*

Sucker. A shoot thrown up by a plant from beneath the surface of the ground.

Sudorific. Having the power of causing perspiration.

Suffruticose. Half-shrubby; having a somewhat shrubby habit.

Sugar Beet. See *Beta.*

Sugar Berry. The fruit of *Celtis occidentalis,* which see.

Sugar Bush. A common name for *Protea mellifera.*

Sugar Cane. See *Saccharum officinarum.*

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Sugar Pea. A name given to edible-podded Peas.

Sugar Pine. *Pinus Lambertiana.*

Sulcate. Grooved longitudinally with deep furrows.

Sultan. Sweet. *Centaurea moschata.*

Sultan. Yellow. *Centaurea suaveolens.*

Sumach. See *Rhus.*

Summer Savory. See *Satureia hortensis.*

Summer Snowflake. See *Leucojum æstivum.*

Sundew. See *Drosera.*

Sundrops. A name given to *Œnothera fruticosa.*

Sunflower. See *Helianthus.*

Sun Plant. A popular name for *Portulaca grandiflora*, and other species.

Sun Rose. See *Helianthemum.*

Sunshine Plant. Australian. *Acacia discolor.*

Superior. Growing above anything. An ovary is superior when it grows above the origin of the calyx.

Supine. Lying flat, with face upwards.

Supple-Jack. See *Berchemia.*

Supra. Above, or upon anything; as supra-axillary, growing above an axil; supra-foliaceous, growing above a leaf.

Supra-Decompound. Many times compound; so much divided that the number and mode of division cannot be precisely ascertained, as the leaves of the Fennel, Carrot, etc.

Surculose. Producing suckers, or shoots resembling them.

Sutherla'ndia. Named in honor of *James Sutherland*, one of the first superintendents of the Royal Botanical Garden, at Edinburgh, and author of a botanical catalogue, 1683. Nat. Ord. *Leguminosæ.*

Very showy, half-hardy, evergreen shrubs, producing freely during summer axillary clusters of scarlet flowers. The plants are too large for ordinary green-house culture, and do not repay the cost of winter protection in the border. *S. frutescens*, the Bladder Senna of the Cape, bears bright red flowers in axillary racemes. It was introduced in 1683, and is often found under the name of *Colutea frutescens.*

Suture. The line of junction of contiguous parts grown together. Sutural dehiscence is the act of splitting along the line of junction of two valves.

Swainso'nia. In honor of *Isaac Swainson*, a celebrated cultivator of plants about the end of the last century. Nat. Ord. *Leguminosæ.*

A genus of over twenty species closely resembling *Sutherlandia.* It is, however, better adapted for pot culture in the green-house, in which case the young wood should be frequently cut back in spring; and after flowering, the stems should be cut down to prevent the plants from becoming straggling and unsightly. There are several species under cultivation, having purple, red, or white flowers, produced singly in pairs on short axillary peduncles. Of *S. galegifolia*, the best known species, there are several varieties in cultivation, all desirable sorts. It was first introduced in 1800, under the name of *Colutea galegifolia*, and is easily increased by cuttings or by seeds.

SWE

Swallow-Wort. A name given to the genera *Asclepias* and *Chelidonium.*

Swamp Dogwood. *Ptelea trifoliata.*

Swamp Hickory. *Carya amara.*

Swamp Honeysuckle. *Azalea viscosa.*

Swamp Rose Mallow. *Hibiscus Moscheutos.*

Swamp Sassafras or **Laurel.** See *Magnolia glauca.*

Swan River Daisy. See *Brachycome.*

Swa'rtzia. Named in honor of *Olaf Swartz, M.D.*, of Stockholm, a long time resident of the West Indies and author of "Flora Indiæ Occidentalis." Nat. Ord. *Leguminosæ.*

A genus of nearly sixty species of plant-stove trees, with one exception all natives of tropical America. *S. grandiflora* and *S. pinnata* are in cultivation, but, owing to their size, are seldom met with except in large or botanical collections.

Swedish Juniper. *Juniperus communis fastigiata.*

Sweet Alyssum. See *Koniga.*

Sweet Amber. *Hypericum Androsœmum.*

Sweet Basil. See *Ocimum.*

Sweet Bay. See *Laurus nobilis* and *Magnolia glauca.*

Sweet Brier. See *Rosa rubiginosa.*

Sweet Chestnut. *Castanea sativa.*

Sweet Cicely. See *Osmorhiza.*

Sweet Clover. See *Melilotus alba.*

Sweet Fern. See *Comptonia.*

Sweet Flag. See *Acorus.*

Sweet Gale. See *Myrica Gale.*

Sweet Gum Tree. See *Liquidambar styraciflua.*

Sweet Leaf. See *Symplocus tinctoria.*

Sweet Marjoram. See *Origanum Majorana.*

Sweet Pea. See *Lathyrus odoratus.*

Sweet Pepperbush. See *Clethra.*

Sweet Potato. See *Potato.*

Sweet Scabious. *Scabiosa atropurpurea.*

Sweet-scented Crab. *Pyrus coronaria.*

Sweet-scented Shrub. *Calycanthus floridus.*

Sweet-scented Verbena. *Aloysia* (*Lippia*) *citrioidora.*

Sweet Sop. See *Anona.*

Sweet Sultan. *Centaurea moschata.*

Sweet Vernal Grass. *Anthoxanthum odoratum.*

Sweet William. See *Dianthus barbatus.*

Swe'rtia. Named after *E. Swert*, a famous cultivator of bulbs and flowers in Holland. Nat. Ord. *Gentianaceæ.*

A genus of annual or perennial plants, mostly hardy, natives of Europe, Asia and northern India. The leaves are used in their native countries medicinally. *S. perennis* is an interesting and singular perennial, with slender, erect stems, growing from one to three feet high, terminated by erect spikes of flowers. It is an interesting plant for the rock garden. Several others of the species are in cultivation under the name of *Ophelia*, but none of them are valuable as flowering plants.

Swiete'nia. Mahogany. In honor of *Gerard Van Swieten*, a Dutch botanist and author. Nat. Ord. *Meliaceæ*.

"The Mahogany Tree, *S. Mahagoni*, is a native of the West Indies, Central America, and Mexico, and is one of the most majestic of trees; for though some rise to a greater height, this tree, like the Oak and the Cedar, impresses the spectator with the strongest feelings of its firmness and duration. In the rich valleys among the mountains of Cuba, and those that open upon the bay of Honduras, the Mahogany expands to so huge a trunk, divides into so many massive arms, and throws the shade of so many shiny green leaves, spotted with tufts of pearly flowers, over so vast an extent of surface, that it is difficult to imagine a vegetable production combining in such a degree the qualities of elegance and strength, of beauty and sublimity. The Mahogany tree is found in great quantities on the low and woody lands, and even upon the rocks in the countries upon the western shores of the Caribbean Sea, about Honduras and Campeachy. It is also abundant in the islands of Cuba and Hayti, and it used to be plentiful in Jamaica, where it was of excellent quality, but most of the larger trees have been cut down. It was formerly abundant on the Bahamas, where it grew to a great height, with the trunks four feet in diameter. When it grows in favorable situations the timber is larger and plain; the better portion, such as is used for veneers, comes from the junction of the branches with the body, or crotches, as they are commonly termed. The trees that grow in rocky and exposed situations do not grow as large, but the timber is more solid, has a greater variety and shade of grain, is much stronger, and in all ways preferable for cabinet work." The Baywood and Spanish Cedar of commerce are of the same species, but are of larger growth, and the wood is very coarse and soft. It is used principally in making cigar boxes or similar work.

Swiss Chard. See *Beta*.

Swiss Stone Pine. *Pinus Cembra*.

Sword Lily. A popular name for *Gladiolus*.

Sya'grus. The old Greek name of a Palm, mentioned by Pliny. Nat. Ord. *Palmaceæ*.

A small genus of unarmed Palms now included by Bentham and Hooker under *Cocos*.

Sycamore Tree. *Acer Pseudo-platanus*. The name is also applied to *Platanus occidentalis* and other species. The Sycamore of the New Testament is *Ficus Sycomorus* (syn. *Sycomorus antiquorum*).

Sylvestris, Sylvaticus. Growing in woods.

Symphorica'rpus. St. Peter's Wort. Snowberry. From *symphoreo*, to accumulate, and *karpos*, a fruit; in allusion to its clustered bunches of fruit. Nat. Ord. *Caprifoliaceæ*.

A genus of hardy, deciduous shrubs, common in most of the States. Some of them are quite ornamental, and are cultivated in the shrubbery border. They grow so freely and sucker so much that it is difficult to keep them under subjection. *S. racemosus*, the Snowberry, has pinkish flowers, disposed in loose racemes, which are succeeded by large white berries, which are very ornamental, and remain on the bush until nearly winter, making it conspicuous in the border. The variegated variety is a fine plant.

Symphya'ndra. From *symphio*, to grow together, and *aner*, *andros*, an anther; the anthers are connate. Nat. Ord. *Campanulaceæ*.

A genus of hardy, perennial herbs, natives of the Caucasus. The flowers are white, yellow or blue; large and often nodding. Propagated by seeds or by cuttings in spring.

Sy'mphytum. Comfrey. From *symphyo*, to make unite, and *phyton*, a plant; in reference to its healing qualities. Nat. Ord. *Boraginaceæ*.

A genus of coarse-growing, weedy plants, formerly esteemed for their medicinal properties, and of the first importance in a collection of herbs. They have become naturalized in this country from Europe, and are common around old gardens and in moist places. *S. officinalis luteo-marginalis* is a very ornamental, hardy variety, the leaves being broadly margined with creamy-white; it is an excellent plant for the herbaceous border. *S. asperrimum* was introduced into this country for use as a forage plant in 1875, but has proved to be entirely valueless for that purpose. Propagated by seeds or by division.

Symploca'rpus. Skunk Cabbage. From *symploke*, connection, and *karpos*, fruit; descriptive of the plant. Nat. Ord. *Aroideæ*.

A rather coarse-growing plant, common in swamps and wet meadows from Virginia to Maine. *S. fœtidus*, the only known species, is the common Skunk Cabbage, and is readily known by its skunk-like odor when the leaves are bruised.

Sy'mplocos. From *symploke*, a connection; the stamens are united at the base. Nat. Ord. *Styracaceæ*.

A large genus of trees and shrubs, broadly dispersed over the warmer parts of Asia, Australia and America. The leaves of *S. tinctoria*, the Horse Sugar or Sweet-leaf of the Southern States, are greedily eaten by cattle, and in Georgia and Carolina are used for dyeing yellow; the leaves of other species are used for the same purpose in Nepal. In India the bark of *S. racemosa*, called Lodh, is used both as a dyeing material and as a mordant for other dyes. *S. Japonica*, with yellow flowers, introduced from Japan in 1850, and *S. sinica*, with white fragrant flowers from China, are both cultivated as green-house shrubs. A still later introduction, however, from the mountains of northern Japan, *S. paniculatus*, has white, sweet-scented flowers, and ultra-marine-blue fruit making the shrub conspicuous among those which are valued for their ornamental fruit. Mr. Jackson Dawson, of the Arnold Arboretum, Boston, assures us that it is perfectly hardy there, and speaks of it as one of the very best of late introductions to our list of hardy shrubs.

Synade'nium. African Milk Bush. From *syn*, united, and *aden*, a gland; the glands of the involucre are united in a cup or disc.

A genus of *Euphorbiaceæ*, closely allied to *Euphorbia*, and of which *S. Grantii*, an African species, introduced in 1867, is cultivated for its bright crimson flowers, which are showy and attractive. It is also an excellent plant for summer hanging baskets, vases, etc., especially in exposed situations, and is increased by cuttings, thoroughly dried at the base before insertion.

Syngenesious. Having the anthers united at their edges so as to form a tube.

Syngo'nium. From *syn*, together, and *gone*, the womb; alluding to the cohesion of the ovaries. Nat. Ord. *Aroideæ*.

S. auritum, introduced from Jamaica, the species most generally found in cultivation, is a rather coarse-growing plant, useful only in large collections. *S. Vellozianum*, *S. Wenlandii*, *S. podophyllum-lineatum*, are all very showy sorts and can be easily increased by division of the stem in heat. Any old plants that get too tall may have their tops cut off and inserted as large cuttings; they will soon root in a warm, moist atmosphere.

Synno'tia. Named in honor of *W. Synnot*, who collected many plants at the Cape of Good Hope; erroneously spelled *Synettia*. Nat. Ord. *Iridaceæ*.

A small genus of three very pretty, greenhouse, bulbous plants, now generally referred to *Gladiolus*. *S. bicolor* is found in cultivation under the name of *Ixia bicolor*.

Synonym. In botany, a superseded or unused name.

Sy'nthyris. From *syn*, together, and *thyrsis*, a little door; in allusion to the closed valves of the pod. Nat. Ord. *Scrophulariaceæ*.

A genus of hardy, or pilose hardy, herbaceous perennials, with thick rhizomes, natives of northwest America. The bluish or reddish flowers are borne in racemes or spikes four to six inches long; closely allied to *Veronica*.

Syri'nga. The Lilac. Pipe Tree. From *syrinx*, a pipe; the branches are long and straight, and filled with *medulla*; hence the old name of the Lilac, Pipe Tree. The English name of the genus is from *lilac* or *lilag*, the Persian word for the flower. Nat. Ord. *Oleaceæ*.

A genus of well-known, deciduous shrubs, with purplish or white flowers, natives of southeastern Europe, Persia, northern India and China. All the species are perfectly hardy, and are easily grown. *S. vulgaris*, the common Lilac, with purple or white flowers, is of doubtful origin, though generally credited to Persia. It has been under cultivation for more than a hundred years, and from the species many varieties have been obtained, but without any marked peculiarities. *S. Persica*, Persian Lilac, is a very distinct species, of much smaller size, rarely growing more than six feet high; the branches are slender and straight, the leaves are smaller and narrowed at the base. The flowers are produced in looser panicles, and the florets are smaller, giving the whole plant a more graceful appearance. The Rouen or Chinese Lilac, *S. Chinensis*, known also as *S. dubia* and *S. Rothomagensis*, is intermediate between the common and the Persian, and is a most desirable shrub. The large growing, *S. Emodi*, from the Himalayas, is only suitable for large shrubberies, it being coarse in growth, and not remarkable for its flowers, which are pale purple, and produced after those of the common Lilac are past. There is also a variegated form of it. The Hungarian Lilac, *S. Josikæa*, is a pretty shrub, and valuable, as it is quite different from the others. It grows fully six feet high, and bears erect spikes of small, pale, mauve flowers. The new *S. Japonica*, known also as *S. Amurensis* and *Ligustrina*

Amurensis, is a most valuable, hardy, flowering shrub. Its hardiness, vigorous growth, excellent habit, ample foliage, and dense clusters of creamy-white flowers, somewhat resembling those of the Japanese privet, appearing at a season when few trees are in bloom make it one of the most desirable of the small trees recently introduced into gardens. The fact that it loses its leaves early in the autumn, and that they fall while still green, is the only drawback which has yet been noticed in it as an ornamental plant. *S. oblata* is not known in a wild state; it was first discovered by Fortune in a garden at Shanghai, and later by the Abbé David in gardens near Pekin. Its perfect hardiness in this climate indicates its northern origin. It flowers ten or twelve days earlier than *S. vulgaris*, and its thick, leathery leaves, which are never attacked by mildew, turn in the autumn to a rich, dark russet color, a character which should be taken advantage of by hybridizers to secure a new race of Lilacs with the large inflorescence of *S. vulgaris*, and the foliage of *S. oblata*. Seedling varieties, many of them much superior in size and color to the species, have been originated in late years and are now in general cultivation. Of the white sorts, the best at the present writing are Marie Legrange, Alba magna, Alba virginalis and Alba grandiflora. Of the colored sorts the finest is Souvenir de L. Spath, with massive clusters of very large, richly-colored flowers. Charles X. (an excellent variety for early forcing) is a desirable sort, and others good in color are, Alphonse Lavallèe, Louis van Houtte, Le Gaulois, Aline Mocquery and Rubra de Marley. There is also a double-flowered section in cultivation which have denser flower-clusters, and as a rule last longer in perfection than the single varieties.

Lilacs are now forced in large quantities for cut flowers, and when blanched pure white they have a very chaste and beautiful appearance. One of the best and most useful for this purpose is the variety known as Charles X.; its panicles of flowers are much larger and more compact than the Persian Lilac of our gardens, which is, however, well adapted for similar use. If forced in sufficient heat the coloring matter has no time to form in the flowers, consequently the colored sorts are as useful for forcing purposes as the pure white varieties. All the species are rapidly increased from layers or from suckers, the only trouble being that they increase so fast as to be troublesome. That the Lilac has been cultivated for centuries there is plenty of evidence. We have personally gathered specimens growing with Parsley (*Apium petroselinum*) in the débris of castles in Great Britain that had been in ruins for over three hundred years, showing that the warlike barons, or their wives, had some taste for the ornamental as well as the useful, even in those early days.

Syri'nga. A common name for *Philadelphus coronarius*, which see.

Syringo'dea. A small order of pretty, dwarf, green-house, bulbous plants, closely allied to Ixia. *S. pulchella* has very pretty, pale, purple flowers nearly two inches long, with filiform leaves. Introduced from South Africa in 1873.

T.

TAB

Tabebu'ia. Said to be the native name in Brazil. Nat. Ord. *Bignoniaceæ.*

A large genus of plant-stove trees or shrubs, natives of tropical America; few of the species are in cultivation. They require the same treatment as *Tecoma*, under which genus they are sometimes included. *T. spectabilis* is now given as the correct name of the species cultivated as *Bignonia* or *Tecoma spectabilis.*

Tabernæmonta'na. East Indian Rose Bay. Named in honor of *James Theodore Tabernæmontanus*, of Heidelberg, a celebrated physician and botanist. Nat. Ord. *Apocynaceæ.*

This genus is composed of very handsome, hot-house shrubs, with deep green foliage and large, white or yellow flowers, possessing an agreeable fragrance. After blooming they should receive a moderate pruning to keep them bushy and increase the number of flower heads. The large, leathery leaves of this and other similar genera are inducements, in the way of shelter, to many troublesome insects, such as thrips, scale and mealy bug; to eradicate these, and keep the plants healthy, they should be frequently washed, each leaf separately, with a sponge and soap and water, or the latter alone, and at intervals receive a sprinkling with a syringe to clean them of dust, which in itself is prejudicial to all plants, and gives encouragement to the insects by causing a languid action in the leaves. The several species are mostly natives of the East Indies, but a few are distributed throughout the West Indies and South America. *T. coronaria flore-pleno*, the species most generally cultivated, bears a pure white flower something like a *Gardenia*, and is very fragrant at night. It is sometimes met with under the old name of *Nerium coronarium.* Its native country is unknown, but it is cultivated throughout India, whence it was introduced in 1770. It is easily increased by cuttings.

Table, Stage and Bench. These are the different terms used for the structure whereon plants are set in the green-house. The *bench* or *table* more particularly refers to one flat platform, which, if in the front of the green-house, is from three to four feet wide; if in the middle or centre of the house, seven or eight feet wide, and from two to three feet in height, according to the style of the house. These widths and heights are important as being the most convenient for use, as well as to show the plants to the best advantage. The *Stage* is a series of platforms, placed usually in the centre of the green-house, being of various widths, from one to three feet. For instance, if the base width of the platform be nine feet, three stagings of three feet each would be required (each elevated a foot above the other) to make the width. This style of green-house benching, however, is less to be recommended than one platform of the same height, as the latter is not only more convenient to work with, but the plants show on it to better advantage than if elevated too high.

TAC

The green-house benches are usually made of inch boards, but in our own practice we have for the past three years had all the "sheeting" for our benches made of rough roofing slate, over which is laid half an inch of cement. These materials cost only about 25 per cent. more than the board benches, and are an immense saving, as the wooden benches rot out from the heat and moisture in four or five years. The skeleton or frame-work of the benches we make of Yellow Pine. If the frame-work were made of iron, such benches would be indestructible; but even with the pine wood frame-work they will stand for twenty years, as the cement covering laid over the slates prevents the water getting to the wood work. Care, however, must be taken to leave spaces every ten feet or so, where the water can escape through the bench. For the material covering the bench on which to set the plants, see *Drainage.*

Tacamahac. A common name for *Populus balsamifera* or the Balsam Poplar.

Ta'cca. The Malay name of the species. Nat. Ord. *Taccaceæ.*

A genus of East Indian plants, grown by the natives for their bulbs, which resemble new Potatoes, and contain a large amount of starch. The various species grow in the open country; *T. pinnatifida* is generally found in sandy places near the sea. The leaf-stalks of this species are plaited into bonnets by the natives of the Society Islands, but the principal use made of all the species is that of their tubers, which, resembling new Potatoes, contain a great deal of starch, known as South Sea Arrowroot, and far preferable to any other Arrowroot in cases of dysentery. The tubers are dug up after the leaves have died away, and are rasped and macerated four or five days in water, when the fecula separates in the same manner as Sago does. It is largely employed as an article of diet throughout the tropics, and is a favorite ingredient for puddings and cakes in the South Sea Islands. The species are rarely seen in plant collections. Syn. *Ataccia.*

Tacca'ceæ. A small, natural order of perennial herbs, with creeping or tuberous rhizomes, found in tropical America, Africa, Asia and the Pacific Islands. The order consists of two genera, *Shizocapsa* and *Tacca*, and includes about ten species. *Ataccia* is placed as a sub-division of *Tacca.*

Taccada Plant. The Malay Rice Paper Plant. (See *Scævola.*)

Tacca'rum. The name is adapted from *Tacca*, which genus they resemble. Nat. Ord. *Aroideæ.*

A small genus of tall, tuberous herbs, natives of Brazil. Two species, *T. peregrinum* and *T. Warmingianum*, are in cultivation. They are very showy, large-leaved, plant-stove species, and are useful for lawn-decoration in summer. Syns. *Endera* and *Lysistigma.*

TETRAGONA (NEW ZEALAND SPINACH).

TARRAGON.

THRINAX BRAZILIENSIS.

TRACHELIUM CŒRULEUM.

 THYMUS VULGARIS (THYME).

TACSONIA (VAN VOLXEMII).

THALICTRUM AQUILEGIFOLIUM.

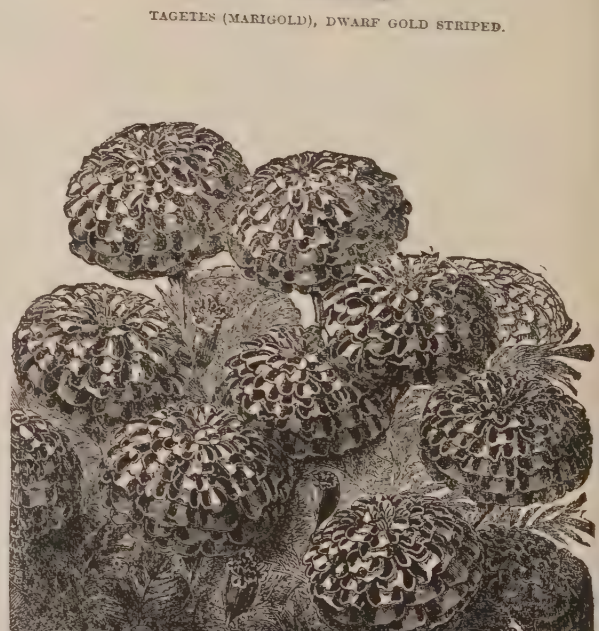
TAGETES (MARIGOLD), AFRICAN "EL DORADO."

TAGETES SIGNATA PUMILA.

TAGETES (MARIGOLD), DWARF GOLD STRIPED.

TAGETES FISTULOSA LUTEA.

TAGETES (MARIGOLD), AFRICAN.



TAGETES (MARIGOLD), DWARF FRENCH, GOLD STRIPED.

TAC

Tachiade'nus. From *Tachia*, a genus of the same order, and *aden*, a gland; the ovary is surrounded by a ring of glands as in *Tachia*. Nat. Ord. *Gentianaceæ*.

A genus of herbaceous or somewhat shrubby plants, natives of Madagascar. *T. carinatus* is a pretty, green-house annual, closely related to *Chironia*, *Lisianthus* and *Exacum*, and was introduced by the Rev. William Ellis in 1858, who brought seeds from Madagascar. It grows freely, branches naturally at the base, and attains the height of a foot or more. The flowers are white, with the lobes of the corolla bright-purple, produced freely in autumn, and lasting over a month before fading. Seeds should be sown in February and treated like Gloxinias.

Tacso'nia. From *Tacso*, the name of one of the species in Peru. Nat. Ord. *Passifloraceæ*.

A genus of very beautiful climbing plants, closely related to *Passiflora*, having the same general appearance, and the same structure of stamens, pistils and fruit, but differing in the usually long, cylindrical tube of the calyx, which is furnished with two crowns, one at the throat, and the other near its base. In *T. manicata*, however, a very handsome species, the tube scarcely exceeds in length that of a Passion Flower. The species are natives of Central America and the West Indies. The fruits of several of them, as *T. mollissima*, *T. tripartita* and *T. speciosa*, are edible. *T. Buchanani* is *Passiflora vitifolia*, and is one of the most beautiful plants of the order. The Tacsonias are all beautiful plants and worthy a place in any collection. They require the same general treatment as *Passiflora*, and are propagated in the same way.

Tæni'tis. From *tainia*, a fillet or ribbon; alluding to the linear pinnæ. A small genus of interesting stove ferns, all tropical, but not very closely allied. They differ principally from *Tæniopsis* and *Vittaria* in their fronds being all net-veined.

Tage'tes. Marigold. From the beauty of its flowers, this genus was named after *Tages*, a Tuscan divinity. Nat. Ord. *Compositæ*.

Marigolds are old favorites in our gardens, particularly those known as African and French Marigolds. The former (*T. erecta*) have uniformly large yellow or orange-colored flowers, and usually attain a couple of feet in height; the latter (*T. patula*) are more dwarf, and have their flowers striped of a deep brown-purple and yellow. They are all showy, especially in masses, and are effective for distant groups. There is, however, another species, *T. signata pumila* (syn. *T. tenuifolia*), preferable for bedding; it is more compact in habit; and though its flowers do not boast the vivid coloring of the French Marigolds (being entirely yellow), yet they are produced in such long succession as to amply compensate for the deficiency; besides which, the scent, so frequently complained of in the others, is in this so much reduced as to be no longer unpleasant. *T. lucida*, the sweet-scented, Mexican Marigold, is also occasionally grown in gardens and is very showy. These comprise all that are worth cultivating as ornamental plants, and require precisely the same treatment as other hardy annuals.

Talau'ma. The native name of the South American species. Nat. Ord. *Magnoliaceæ*.

TAM

A genus of trees or shrubs remarkable for their fine, fragrant flowers. There are about fifteen species, four of which are natives of tropical America and the rest of Asia and Japan. Six or more species are in cultivation, but are found only in large collections. Propagated principally by layers.

Taliga'lea. Said to be the native name in Guiana. Nat. Ord. *Verbenaceæ*.

Amasonia is now the correct name of this genus. (See Amasonia.)

Tali'num. Supposed to be from *thalia*, a green branch; referring to its durable verdure. Nat. Ord. *Portulacaceæ*.

A genus of annual and biennial, succulent plants, inhabiting the warmer parts of both hemispheres, but chiefly confined to sub-tropical America. *T. patens*, and its variety with variegated foliage, a native of Brazil, is a desirable plant for the border, or as a basket or vase plant, being well adapted to stand hot, dry weather, and does not suffer badly if neglected. The variegated variety is often used as a white line for ribbon borders. This species is used in Brazil as a pot-herb, and is readily propagated by seeds or cuttings. Introduced in 1776.

Talipot Palm. See *Corypha umbraculifera*.

Tallow Shrub. A common name for *Myrica cerifera*.

Tallow Tree. See *Stillingia*.

Tamarack. American or Black Larch, Hackmatack. See *Larix Americana*.

Tamarica'ceæ. A natural order of shrubs or undershrubs, found chiefly in maritime sands or gravelly places near rivers, in the temperate and warmer regions of the northern hemisphere, and also in South Africa. The two principal Asiatic and European genera, *Tamarix* and *Reaumuria*, are regarded by some botanists as types of distinct orders; and the splendid Mexican genus, *Fouquiera*, differing chiefly in the large petals, united into a tubular corolla, has only lately been associated with the *Tamaricaceæ* as a third tribe.

Tamarind. See *Tamarindus*.

Tamari'ndus. Tamarind Tree. *Tamar*, in Arabic, is the name of the Date, and *Indus*, Indian, literally Indian Date. Nat. Ord. *Papilionaceæ*.

The tree that furnishes the Tamarinds for preserves is a native of the East and West Indies, Egypt and Arabia. It is a large, spreading and beautiful tree, and its graceful, pinnated foliage, and racemes of fragrant flowers, which are yellow striped with red, and its purple stamens, give it an elegant appearance. *T. Indica* is the only known species, and this varies but little in the different countries in which it abounds. Propagated from cuttings and by seeds. Introduced in 1633.

Ta'marisk. See *Tamarix*.

Ta'marix. Tamarisk. From *Tamaris*, now Tambro, the name of a river where it grows, on the borders of the Pyrenees. Nat. Ord. *Tamaricaceæ*.

Tall-growing shrubs, mostly natives of Europe. A great many species are enumerated, but two only are usually met in collections of ornamental shrubs. These are *T. Gallica*,

the French Tamarisk, and *T. Germanica*, the German Tamarisk. The French Tamarisk is far the handsomest, and will thrive in almost any soil or situation: in bleak exposed places on the seashore, in the poorest sandy soils, it never fails to succeed and to produce its long, terminal, graceful spikes of pinkish flowers. It will do equally well in city yards, that are exposed to sun, soot and smoke. It is, in short, one of our most valuable ornamental shrubs. The Manna of Mount Sinai is produced by a variety of *T. Gallica;* it consists wholly of pure, mucilaginous sugar. *T. Africana* is quite commonly grown. The plants are easily increased by cuttings.

Tampico Fibre. See *Leopoldinia.*

Ta'mus. Black Bryony. Ladies' Seal. The old Latin name used by Pliny. The only European representative of the Nat. Ord. *Dioscoridaceæ.* There are two well-known species, *T. communis*, the Black Bryony, a British plant, and *T. cretica*, a native of Greece and the Grecian Archipelago. They are both climbing plants, and have thick tuberous roots, sending up annual stems which grow to a great length. Their flowers are of separate sexes, borne on different plants, and are produced in the leaf axils, in slender branched racemes. They are increased by divisions of the roots or by seeds.

Tanace'tum. Tansy. Derivation of name unknown. Said to be altered from *Athanasia*, immortal; in allusion to the persistent flowers. Nat. Ord. *Compositæ.*

All the species that compose this genus are hardy, herbaceous plants, or what might properly be called weeds. *T. balsamita*, a very sweet-smelling, hardy, herbaceous plant, is the Costmary or Alecost of old gardens. *T. vulgare* is the common Tansy of the old gardens and roadsides. It was formerly introduced as a garden plant, and took a prominent position among domestic medicines, but is now pretty generally discarded. It is a native of Europe, has escaped from the gardens, and has long been naturalized in the United States. *T. v. crispum* is a very elegant, dwarf variety, with smaller, emerald-green leaves, which are very elegantly cut, and have a crisped or frizzled appearance.

Tanghi'nia. Ordeal Tree. *Tanghin* is the native name of the plant in Madagascar. Nat. Ord. *Apocynaceæ.*

T. venenifera, the only species, is a small, glabrous, evergreen tree, with rose-colored flowers in large terminal cymes, each supported by a couple of bracts. The seeds of this plant furnish a powerful poison, and were formerly used as an ordeal by the kings of Madagascar. The seed was pounded, and a small portion given to each person to be tried; those in whom it caused vomiting, escaped, but to those whose stomachs retained it, it was quickly fatal and their guilt was then held to be proven.

Tansy. See *Tanacetum.*

Tape Grass. See *Vallisneria.*

Tapeino'tes. A small genus of *Gesneraceæ*, for the most part now included in *Sinningia* and *Gloxinia.*

Taper. The opposite of angular; usually employed in contradistinction to that term when speaking of long bodies.

Tapioca Plant. A common name for *Manihot utilissima.*

Tap-Root. A root which penetrates deep and perpendicularly into the ground without dividing.

Tara'xacum. Dandelion. Name supposed to be from the Greek *taraxo*, to disquiet or disorder; in allusion to the medicinal effects of the plant. Nat. Ord. *Compositæ.*

The common Dandelion, *T. Dens-leonis*, is a native of Europe, but has become so thoroughly naturalized as to be a very troublesome weed. The roots have powerful medicinal properties and are held in high esteem by the Eclectic practitioners. The leaves are used as a pot-herb, for which purpose the plants are grown in frames by the market gardeners of nearly all large cities. It is also used as an early spring "greens," and is cultivated for this purpose in both private and market gardens. Of late years a great improvement has been made in the size of the leaves of the cultivated kinds. Propagated by seeds.

Tare. The common Vetch, *Vicia sativa*, also *Vicia hirsuta* and *Ervum Ervilia.*

Tares of Scripture. See *Lolium temulentum.*

Ta'ro. The native name for *Colocasia antiquorum.* This plant forms one of the chief articles of diet in the Pacific Isles, where it is largely cultivated. The tubers are boiled or baked, or made into bread, and the young leaves may be eaten like Spinach; but like the tubers they require to be well cooked to destroy their poisonous properties and acridity. Several varieties are cultivated, some being better for one mode of cooking, some for another. Dr. Seemann relates that one kind, called "Kurilagi," was pointed out to him as having been eaten with nearly a whole tribe of people, in the island of Viti Levu. This tribe having given great offence to the ruling chief of the district, was condemned to die. Every year the inmates of one house were baked and eaten, the empty dwelling burned down, and its foundation planted with "Kurilagi." The next year when this Taro was ripe, it was the signal for destroying the next house and its inhabitants, and the planting of a fresh field of Taro. After many years the remaining few were pardoned, and allowed to die a natural death, and in 1860 one old woman was the only survivor of the tribe. (Seemann's "Flora Vitiensis.")

Ta'rragon. (*Artemisia Dracunculus.*) This, like many garden plants that have been under cultivation for at least four hundred years, is of unknown origin. Opinions are divided as to whether it is a native of Siberia or the South of Europe. It is a hardy, herbaceous perennial, cultivated for its leaves and young shoots, both of which are used as an ingredient in salads, soups, stews, pickles and various other compounds. Tarragon vinegar, so much esteemed as a fish-sauce, is made by an infusion of the leaves in common vinegar. It is propagated from seeds, or from pieces of the root, every portion of which, however small, will grow if a single bud is left on.

Tartareous. Having a rough, crumbling surface.

Tartarian Honeysuckle. See *Lonicera.*

Tartarian Lamb. See *Cibotium Barometz.*

TAS

Tassel Flower. See *Cacalia.*

Tavernie'ra. Named in honor of *J. B. Tavernier*, a celebrated traveler in the Levant. Nat. Ord. *Leguminosæ.*

A small genus of shrubs, natives of the East Indies and the Orient. *T. nummularia*, the East Indian Money-wort, is a dwarf, very bushy, branching, green-house shrub, with trifoliate, fleshy, obcordate leaves, and racemes of rather pretty, red flowers. Only two species have been introduced.

Taxa'ceæ. A sub-order of *Coniferæ*, often considered as a distinct order, chiefly by their fruits not being collected in cones, each ovule growing singly, unprotected by hardened scales.

Taxo'dium. Bald Cypress, Deciduous Cypress. From *taxus*, the Yew, and *oides*, like; trees resembling the Yew. Nat. Ord. *Coniferæ.*

T. distichum, the deciduous Cypress, abounds in the Southern States, growing as far north as Delaware and southern Illinois. It is one of the most valuable trees for timber, and is considerably grown as an ornamental tree for the lawn. It is perfectly hardy as far north as New York. Beautiful specimens are often seen on lawns, where their feathery foliage renders them attractive objects.

Ta'xus. Yew. From *taxon*, a bow; the wood anciently used for bows; or from *taxis*, arrangement, the leaves being arranged on the branches like the teeth of a comb. Yew is supposed to be from the Celtic word *iw*, signifying verdure; alluding to the Yew being an evergreen. Nat. Ord. *Coniferæ.*

A genus of well-known evergreen trees, popularly known as the Irish Yew. They are compact in habit, their branches being densely crowded with leaves; they are also upright, the branches perpendicular, giving the tree a small circumference for its height. On this account, it is a favorite tree for cemeteries and churchyards. There is a native species, *T. baccata* var. *Canadensis*, commonly known as Ground Hemlock or American Yew, common in the more Northern States, on moist banks and hills. It rarely grows more than four feet high, and is branching and straggling in habit. *T. baccata*, the common Yew of England, is the species from which the ancient English bows were made. Loudon says: "In the days of archery the Yew was the principal wood used for the bow in Britain, and in the reign of Henry VIII., of England, the demand was so great that it had to be imported from the continent of Europe into England, and various laws were passed concerning it from the days of Edward IV. to Elizabeth."

Tea-Berry. Canada Tea. A local name sometimes given to the Wintergreen, *Gaultheria procumbens*, which see.

Tea-Plant or **Tea-Tree.** See *Thea.*

African. *Lycium afrum.*
American Mountain. *Gaultheria procumbens.*
Australian. Various species of *Leptospermum* and *Melaleuca.*
Blue Mountain. *Solidago odora.*
Botany Bay or Sweet. *Smilax glycyphylla.*
Brazilian. *Stachytarpheta Jamaicensis.*
Cape Colony. *Helichrysum serpillifolium.*
Ceylon. *Elæodendron glaucum.*
Duke of Argyle's. *Lycium barbarum.*
Malay. *Eugenia variabilis.*

TEE

Mexican. *Psoralea glandulosa.*
New Jersey. *Ceanothus Americanus.*
New Zealand. *Leptospermum flavescens* and *L. scoparium.*
New Zealand, Sweet Scented. *Philadelphus aromaticus.*
Oswego. *Monarda didyma.*
Paraguay. See *Ilex Paraguariensis.*
Tasmanian. *Melaleuca squarrosa.*
Wild. *Amorpha canescens.*
Winter Berry. *Prinos glabra.*

Teak Tree. Indian. See *Tectona grandis.*

Tear Thumb. A name commonly applied to several species of *Polygonum*, on account of their rough, bearded stems, which lacerate when handled.

Teasel. See *Dipsacus.*

Teco'ma. From *Tecomaxochitl*, the Mexican name of the species. Nat. Ord. *Bignoniaceæ.*

A genus of hardy, deciduous and green-house, evergreen, climbing shrubs, consisting of upward of fifty species. They are mostly South American plants. *T. radicans*, or Trumpet Creeper, in general cultivation, is a native species, common from Pennsylvania to Illinois and southward. It is well adapted for covering walls or arbors in exposed places, being perfectly hardy and a rapid grower; the flowers are large, tubular, and a brilliant orange. *T. grandiflora* is nearly allied to *T. radicans*, but has larger flowers of a deeper shade of orange. These two species are commonly known as Bignonias. Some of the green-house species are objects of great beauty, but as they flower in summer, they are not as generally grown as they should be. All the species are propagated from cuttings of the root or suckers.

Tecophylæ'a. Chilian Crocus. Named after *Tecophila*, the daughter of the botanist Bilotti. Nat. Ord. *Hemodoraceæ.*

T. cyanocrocus, the only species yet introduced, is a charming little Chilian, bulbous plant, growing only a few inches in height, having narrow leaves and erect bell-shaped flowers, of an intensely deep blue, with a light centre. It is a spring flowerer, and nearly, if not quite, hardy. Introduced in 1872.

Te'ctona. Teak Tree. From *Tekka*, its Malabar name. Nat. Ord. *Verbenaceæ.*

This is a celebrated timber tree of the East Indies, used for ship-building in preference to all other woods, because of its strength, great durability, the ease with which it can be worked, and its non-liability to be injured by the attacks of Fungi. Some of the species have been introduced into the green-house. They are very handsome trees, with purple or white flowers, but their size prevents their general introduction.

Tee'dia. Called after *J. G. Teede*, a German botanist and traveler, who died in Surinam. Nat. Ord. *Scrophulariaceæ.*

A small genus of green-house, glabrous or pubescent shrubs, natives of South Africa. Two species, *T. lucida* and *T. pubescens*, have been introduced. They have small, pink flowers, borne in a terminal, leafy thyrse, and are quite pretty plants when in flower. A rich, light soil is most suitable for them, and propagation may be effected by seeds or by cuttings.

TEE

Teesda'lia. Named after *Robert Teesdale*, an English botanist, author of a "Catalogue of Plants growing about Castle Howard." Nat. Ord. *Cruciferæ*.

A genus of two species of inconspicuous, hardy, annual plants, with minute, white flowers and rosulate leaves, natives of western Europe and the Mediterranean region.

Tel'anthera. From *televis*, complete, and *anthera*, an anther. Nat. Ord. *Amaranthaceæ*.

Kept up by Bentham and Hooker as a separate genus, but cultivated under the name of *Alternanthera*, which see.

Telegraph Plant. A popular name for *Desmodium gyrans*.

Tele'kia. Name not explained. Nat. Ord. *Compositæ*.

T. cordatum, the only species under cultivation, is a fine, robust, herbaceous plant, with large, cordate leaves. The flower-heads are of a rich orange color, produced in cymose panicles; it is a plant well adapted for a shrubbery border, as its bloom is long continued, which, with its handsome foliage, constitutes a handsome border plant. The robust stems require no staking. Native of southern Europe; introduced in 1825. Propagation by seeds and division of root in spring. Syn. *Buphthalmum*.

Tele'phium. Named by Linnæus after *Telephus*, a son of Hercules. A genus of *Illecebraceæ*, inhabiting the Mediterranean region, and found also at the Cape of Good Hope. *T. Imperatri*, the Tree Orpine, has been introduced, but is not worth cultivating.

Telfai'ria. Named after *Charles Telfair*, an Irish botanist, who died in the Mauritius, 1833. Nat. Ord. *Cucurbitaceæ*.

T. pedata, the best known species, is a tall, climbing plant, a native of Zanzibar, introduced in 1825, but rarely grown, the room and care required in the green-house being considered too valuable for a plant only remarkable for its curious fruit, which often grows three feet long, and six to eight inches in diameter, containing upward of two hundred and fifty circular seeds, about an inch in diameter. These seeds yield an excellent oil, and they are, moreover, as palatable as almonds. *T. occidentalis*, introduced from West Africa in 1870, is said to be cultivated for its seeds, which the negroes boil and eat.

Telli'ma. An anagram of *Mitella*, under which this genus was formerly included. Nat. Ord. *Saxifragaceæ*.

A genus of hardy, erect, annual or perennial plants, natives of northwestern America, resembling the *Heuchera*. *T. grandiflora* has prettily colored and veined leaves, like *Heuchera Richardsoni*, and spikes of small, yellowish, bell-like flowers. It is a good plant for the rock-garden, and is increased by cuttings.

Telo'pea. Waratah. From *telopas*, seen at a distance; alluding to the great distance at which its crimson-colored flowers may be seen in its native country. Nat. Ord. *Proteaceæ*.

The brilliant, scarlet flowers of this plant, which are conspicuous even at a great distance, are said to have been one cause why the coast of New South Wales was distinguished by its first visitors as Botany Bay, in allusion to the great accession to botany

TEM

likely to be derived from a country where the plants appeared so different from those of Europe. The flower of the Waratah may be compared to a gigantic head of clover of the most intense and brilliant scarlet, but it is not common, probably because it is a very difficult plant to manage. The first point to be attended to is to have the pot in which it is grown thoroughly well drained, and the next, to allow it abundance of light and air. It is propagated by cuttings or suckers, which it throws up in abundance. It should be regularly watered in the flowering season, but it may be kept almost dry during the winter months.

Temperature. A temperature suited to the nature of the plant is one of the most important conditions to the well-being of plants under cultivation, and the nearer we can come to the conditions of temperature and moisture of the native habitat of the plant the nearer we come to perfection in cultivation. Thus we find that in our garden weeds, the Chickweed (*Stellaria media*) is only troublesome in early spring and in the fall, when the average temperature is perhaps 50° or 60°, because it is a native of a country (Britain) where there is no higher average; while our too familiar Purslane (*Portulaca oleracea*) only rears its head to injure, in the dog days, when the thermometer averages 70° or 80°, because it is an importation from the tropics.

A large proportion of Lima Beans, Sweet Corn, and other tropical vegetable seeds, annually perish by being sown two or three weeks too early by our impatient amateur horticulturalists; while, on the other hand, the colder blooded Parsnip or Carrot all but refuse to germinate, and often fail to grow in the hot summer weather. Seeds of Calceolarias, Cinerarias, Primroses, Pansies, etc., which in England are sown and germinate freely in July, will in a majority of cases utterly fail if attempted at the same date here, where we have 15° to 20° higher temperature and a drier atmosphere. We hear of hundreds of failures of this kind every season, which are laid to the quality of the seeds by foreign gardeners, who have not yet had experience with our American climate. The same seeds sown during the months of February, March, or April, or September, or October, would germinate without trouble, because the temperature and atmosphere then can be made inside congenial to their nature.

The same necessity for congenial temperature exists in growing in matured plants, and one of the main causes of want of success in cultivating plants under glass is a want of knowledge, or carelessness, in keeping a temperature unsuited to the growth of the plants. In ordinary green-house collections the fault is oftener in the temperature being kept too high than too low, for it is usually much easier, requiring far less watchfulness by the person in charge, to keep up a high temperature. The injury done by this is gradual, and will not, like the action of frost on the plants, show in the morning. In consequence of this, we often see the green-houses containing Camellias, Azaleas, Pelargoniums, Carnations, etc., sweltering under a continued night temperature of 60° or 65°, when their nature demands 15° lower. In large establishments, where there are a number of green-houses, this is made an

easy matter by placing the proper number of four-inch pipes in a green-house to suit the different temperatures for example, in our own establishment, where our houses are uniformly twenty feet wide, for a temperature of from 35° to 40° in coldest weather, we use four runs of pipes, that is, two pipes on each side; for 40° to 45° we use five pipes; for 45° to 50° we use six pipes; for 55° to 60° we use eight pipes; and for 65° to 70° we use ten pipes.

It is true, we too often see collections of hot-house and green-house plants intermingled, and attempts made to grow them which, of necessity, result in failure to one or the other. The temperature to grow, in healthy condition, Dracænas, Crotons, Coleus, Bouvardias or Poinsettias (hot-house plants), would not be likely to maintain Azaleas, Camellias, Verbenas, Carnations or Geraniums long in a healthy state. The same rules follow as to the propagating-house, showing the necessity of observing the requirements of their different natures. See "Propagation of Plants by Cuttings."

The subject is one that relates to so many varieties and different conditions of organism at the different seasons of growth, that it is impossible to convey to the inexperienced what these varieties and conditions are; but our object is to impress upon inexperienced readers what we have long believed to be an important truth, that the supplying the proper conditions of temperature to plants under glass, according to their different natures and conditions, has as much to do with their welfare as any other cause, if not more; and that often, when ascribing the unhealthy state of a plant to uncongenial soil or defective drainage, or the "damping off" of some favorite cutting to the way it was cut or the sand it was put in, the true and sole cause of failure was nothing more than condemning them to an atmosphere uncongenial to their nature.

Templeto'nia. Named in honor of *John Templeton*, an Irish botanist. Nat. Ord. *Leguminosæ*.

A genus of New Holland plants, with red or yellow axillary flowers. *T. retusa*, the "Coral Bush," and two or three other species are grown in green-houses for their showy flowers. Increased by cuttings of the young wood.

Te'naris. Said to be the native name in South Africa. Nat. Ord. *Asclepiadaceæ*.

A small genus of erect, slender, green-house, perennial herbs, natives of southern Africa. *T. rostrata*, the only introduced species, has a whitish corolla, densely covered towards the base with purple dots. It forms a slender bush about one and a half feet high. Introduced from east tropical Africa in 1885.

Tendril. The twisting, thread-like process by which one plant clings to another.

Teosinte. *Euchlæna luxurians.* An introduction from Mexico, the seeds of which were received here in 1879 from the Royal Gardens at Kew, England. It had been previously sent to the British colonies in Africa and other tropical latitudes, where the reports from it as a fodder crop were of the most extravagant kind. When fully developed, it reaches a height of twelve feet, each seed making a plant having from one hundred to one hundred and twenty shoots, when planted five or six feet apart. It somewhat resembles the Pearl Millet, and, like it, will admit of repeated cuttings during the growing season. Although perennial, it will probably do better if treated as an annual, sowings to be made every season, as any plant of that luxuriance would quickly exhaust the soil if allowed to remain the second year. As it is closely allied to our Maize, or Indian Corn, it will likely be best suited for the Southern States. Syn. *Reeana luxurians.*

Tephro'sia. Hoary Pea. From *tephros*, ash-colored; in allusion to the color of the foliage of some of the species. Nat. Ord. *Leguminosæ*.

An extensive genus of hardy and green-house, herbaceous plants. Of the hardy species, *T. Virginiana* is the more common and beautiful. It is usually found in clumps from one to six feet in diameter, growing on dry, sandy soils, in which it succeeds finely, and is a valuable border plant. Its flower stalks are about a foot high, and flowers creamy white and rosy purple, produced in terminal clusters in July. It is very common in the Northern States, and is far more showy and attractive than many of our prominent garden flowers. The tender varieties, requiring the protection of the green-house, are difficult to manage, and do not repay the trouble by their short season of flowers.

Terebinth Tree. A common name for *Pistachia Terebinthus.*

Teres, Terete. Tapering; free from angles; cylindrical, or nearly so.

Terminal. Borne at, or belonging to, the extremity or summit.

Termina'lia. Myrobalan Tree. Olive-bark Tree. From *terminus*, end; the leaves are in clusters at the ends of the branches. Nat. Ord. *Combretaceæ*.

An extensive genus of tropical evergreens, found occasionally in botanical collections. The fruits of several of the species form an important article of commerce in India, being extensively used for tanning and dyeing purposes. They are known in commerce under the name of Myrobalans, and are used by calico-printers for the production of a permanent black.

Ternate. Growing in threes; applied to a leaf consisting of three leaflets.

Ternstrœ'mia. The typical genus of the Nat. Ord. *Ternstromiaceæ*, comprising about twenty-five species, inhabiting tropical Asia and America, where they form evergreen shrubs or trees. The flowers are not very showy, but a few of the species are grown for their ornamental foliage. They can be propagated by cuttings of the half-ripened wood.

Ternstrœmia'ceæ. A natural order of trees or shrubs, chiefly tropical, and many of them of great beauty. The most important economic product of this family is Tea (*Thea Chinensis*), by many botanists included under *Camellia* as *C. theifera*, now so largely used all over the world. The order comprises about thirty genera and two hundred species; *Gordonia*, *Stuartia* and *Camellia* are good examples.

Tessellated. Checkered; when colors are disposed in small squares.

Testa. The skin, or integument of a seed.

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Testaceous. Brownish-yellow; resembling unglazed earthenware in color.

Testudina'ria. Elephant's Foot. From *testudo*, a tortoise; resemblance of the outside roots. Nat. Ord. *Dioscoreaceæ.*

A very singular genus of plants, with enormous scaly roots above ground, some of the species resembling an elephant's foot, whence the common name. From these roots arise slender, climbing stems to the height of thirty or forty feet, with small, heart-shaped leaves, and axillary racemes of inconspicuous, greenish-yellow flowers. The plants are natives of the Cape of Good Hope, and are rarely met in collections.

Tetra. This term, used in Greek compounds, signifies four; as Tetraphyllous, four-leaved; Tetrapterous, four-winged, etc.

Tetrago'nia. New Zealand Spinach. From *tetra*, four, and *gonia*, an angle; in allusion to the fruit being four-angled. Nat. Ord. *Ficoideæ.*

Plants not worth cultivating, except *T. expansa*, which is grown as a substitute for Summer Spinach. See New Zealand Spinach.

Tetragoni'aceæ. A natural order included under *Ficoideæ* as a sub-order.

Tetrane'ma. From *tetra*, four, and *nema*, a filament; the genus is characterized by having four stamens. Nat. Ord. *Scrophulariaceæ.*

T. Mexicana, the Mexican Fox-glove, is a very pretty, dwarf, perennial plant, blooming all summer. The flowers are purplish-violet, variegated with a paler color. It has been in cultivation since 1843, and is readily increased by seeds or by divisions.

Tetra'pterys. From *tetra*, four, and *pteron*, a wing; the carpels are each four-winged. Nat. Ord. *Malpighiaceæ.*

A large genus of generally climbing, plant-stove shrubs, natives of tropical America. The flowers are yellow or reddish and borne in umbels or racemes, often panicled and generally terminal. Several species have been introduced, but they are difficult to bloom in cultivation.

Tetraquetrous. Having four very sharp and almost winged corners or angles.

Tetrastichous. Having a four-cornered spike.

Tetrathe'ca. From *tetra* four, and *theke*, a cell; the anthers are sometimes four-celled. Nat. Ord. *Tremandraceæ.*

A genus of nearly twenty species of very pretty, small, green-house plants, natives of Australia. They resemble Heaths in general appearance and require the same treatment. Propagation is effected by cuttings of the young wood when partially firm. *T. verticillata* is now called *Platytheca galioides.*

Teu'crium. Germander, Wood Sage. Named after *Teucer*, a Trojan prince, who first used it medicinally. Nat. Ord. *Labiatæ.*

Hardy, half-hardy and tender perennial, biennial, annual and shrubby plants, the smaller kinds of which are suitable for rock-work. Some of the kinds are showy border flowers, and others handsome, green-house shrubs, particularly those that are natives of Madeira. *T. Betonicum* is, perhaps, one of the best of these, as it has loose spikes of fragrant crimson flowers. *T. Canadense*, American Germander, is common in low grounds, along

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fence-rows or waste places. It is a species that will become troublesome if not exterminated. It is not worthy a place in the garden.

Teysma'nnia. Named in honor of *J. E. Teysmann*, director of the botanic garden at Buitenzorg, Java, by whom *T. albifrons*, the sole representative of the genus, was discovered. Nat. Ord. *Palmaceæ.*

As a genus it is closely allied to *Corypha*, from which it differs mainly in habit, its leaves bearing more resemblance in shape to those of the *Musa* than to either of the ordinary forms of Palm leaves. The inhabitants of Sumatra call this Palm the Beluwan or Belawan, and use its leaves for thatching their houses, for which, from their large size and entire form, they are admirably adapted.

Texan Pride. A local name for *Phlox Drummondii.*

Thalamus. The receptacle in a flower; the part on which the carpels are placed.

Tha'lia. Named in honor of *J. Thalius*, a German physician. Nat. Ord. *Scitamineæ.*

A small genus of aquatic plants, natives of South Carolina and the West Indies. *T. dealbata* is one of the most stately of all hardy aquatics, quite different from the Cannas, to which, however, it is closely related. It is a native of South Carolina, and its glaucous foliage, and elegant panicles of purple flowers, render it a most desirable plant for the cool aquarium with the various *Nymphæas*, *Cannas*, *Cyperus*, *Papyrus* and other water plants.

Thali'ctrum. Meadow Rue. From *thallo*, to grow green; in allusion to the color of the young shoots. Nat. Ord. *Ranunculaceæ.*

A genus of hardy, herbaceous plants, common throughout the United States and Europe. None of our native species have been much introduced into the flower garden, although many of them are worthy of a place there. *T. alpinum* is a dwarf species with white or yellow flowers, and makes a pretty plant for rock-work. There are several of the species that are grown for the same purpose. *T. aquilegifolium*, a native of Austria, is a very pretty border plant, with light purple flowers. It is propagated by division or from seeds. *T. adiantifolium* and *T. minus* are most desirable species, forming compact tufts from twelve to eighteen inches high, very symmetrical and of a slightly glaucous hue. They may be grown altogether for their leaves, which are pretty enough to pass, when mingled with cut flowers, for some of the finer species of Maiden-hair Ferns; they are, moreover, stiffer and more lasting than Fern fronds. For this purpose, the flower stems, which appear in May and June, should be pinched off to encourage the growth of the leaves. *T. tuberosum* grows about nine inches high. In addition to its graceful foliage it has an additional beauty in the abundant mass of yellowish, cream-colored flowers which it produces. *T. anemonoides* is the Rue Anemone, one of the most charming, as well as one of the earliest of our native spring flowers.

Thallogens. A name applied by Lindley and others to comprise those cryptogams which are extremely simple in their structure, and exhibit nothing like the green leaves of the phœnogams. They include the two vast tribes

of *Algæ* and *Fungi*, of which latter the Lichens are a sub-division.

Tha'llus. A fusion of root, stem and leaves into one general mass; the cellular mass of which the lower cryptogamous plants are entirely composed.

Thamno'pteris. Derivation of name not given. Nat. Ord. *Polypodiaceæ*.

A small genus of bold, evergreen Ferns, with simple fronds, having the general appearance of *Asplenium*. The typical species is often called Bird's-nest Fern, and has been severally classed as *Asplenium nidus* and *Neottopteris vulgaris*. The species are indigenous to the East Indies, the Pacific Islands and to Australia.

Tha'psia. So called from the Island of Thapsos. Nat. Ord. *Umbelliferæ*.

A small genus of perennial herbs, natives of the Mediterranean region and Madeira. The only species of interest is *T. garganica*, the Drias-plant, celebrated among the Moors for its healing qualities. The roots of *T. edulis* are eaten in Madeira. Syn. *Monizia*.

Thatch Palms. A native name for various species of *Sabal*, *Euterpe*, *Thrinax*, etc.

Thea. Tea. From *Tcha*, the Chinese name for Tea. Nat. Ord. *Ternstromiaceæ*.

Thea and *Camellia* belong to the same natural order, and there is so little difference between the two, botanically, that they were formerly classed as one. Besides the well-known Tea plant, there are but five species, all natives of India, China and Japan. They are all evergreens, either shrubs or small trees, with thick, shining leaves and white or rose-colored flowers. We are indebted to the "Treasury of Botany" for the following concise history of this plant: "The native country of the Tea plant, like that of many others which have long been cultivated by man, is uncertain. Hitherto the only country in which it has been found in a really wild state is Upper Assam; but China, where it has for so many centuries been most extensively cultivated, has not yet received so thorough an exploration by botanical travelers as to warrant the assertion that it is not indigenous to any part of that vast empire. A Japanese tradition, however, which ascribes its introduction into China to an Indian Buddhist priest, who visited that country in the sixth century, favors the supposition of its Indian origin. It was at one time commonly supposed that the two well-marked sorts of Tea, Black and Green, were the produce of distinct species; but Mr. Fortune has proved that the Chinese manufacture the different kinds indiscriminately from the same plant; and botanists are now pretty generally agreed that the two supposed Chinese species, called *T. Bohea* and *T. viridis*, are nothing more than varieties of one and the same species, for which the Linnæan name, *T. Chinensis*, is adopted, and of which the Assam Tea plant (sometimes called *T. Assamica*) is merely a third variety, or perhaps, indeed, the wild type. Botanists have again relegated them to *Camellia*, under the name of *C. theifera*. Though the produce of the same variety of the Tea plant, the Black and Green Teas prepared for exportation are mainly the growth of different districts of China, the Black Tea district being situated in the provinces of Fokien and Kiangsi, and the Green in Chekiang and Nganwhi; but the two kinds may be produced in either district, the difference being caused solely by the diverse methods of preparation. For the manufacture of Black Tea, the freshly-gathered leaves, freed from extraneous moisture by a short exposure in the open air, are thrown, in small quantities at a time, into round, flat iron pans, and exposed to gentle fire-heat for about five minutes, which renders them soft and pliant, and causes them to give off a large quantity of moisture. After this they are emptied out into bamboo sieves, and while still hot, repeatedly squeezed and rolled in the hands to give them their twist or curl. They are next shaken out into large screens and placed in the open air in the shade for two or three days; and finally exposed in iron pans to a slow and steady fire-heat until completely dried, care being taken to keep them in constant motion to prevent burning. The chief difference in the manufacture of genuine Green Tea consists in the leaves being so long exposed to the air after rolling that fermentation does not take place, and in not being subjected to such a high temperature in the final drying; but the greater part, if not the whole, of the Green Tea consumed in Europe and America is colored artificially by the Chinese to suit foreign trade. The Chinese distinguish a great number of varieties of Tea, some of which sell for $12.50 per pound; but these fine kinds will not bear a sea voyage, and are used only by the wealthier classes in China and Russia, to which country they are carried overland. In ordinary commerce four kinds of Black and six of Green Tea are recognized; but the difference between them consists chiefly in size, the several kinds being obtained by sifting." The Agricultural Department at Washington has distributed hundreds of thousands of Tea plants in different sections of the Southern States, and experiments at this date of writing are still under way, with little hope of its introduction being of any advantage to the economic industry of the country.

Theca. A spore case; a sac, tube, shell, or any kind of case containing spores.

Theobro'ma. Chocolate Tree. Linnæus named this tree from *Theos*, a god, and *broma*, food; poetically, food for the gods. *Chocolate* is the Mexican name of the beverage made from the pounded seeds. Nat. Ord. *Sterculiaceæ*.

T. Cacao, the important species of this genus, is a native of the West Indies and Central and South America. It is a beautiful tree, growing from twelve to sixteen feet high; the leaves are lanceolate, oblong, bright green; the flowers are small, reddish and quite inodorous. The fruit is smooth, of a yellow or red tinge, from six to ten inches in length, and about three inches in diameter; the rind is fleshy, about half an inch in thickness; within the flesh is a white substance of the consistence of butter, separating from the rind when ripe, and adhering only to it by filaments, which penetrate it and reach to the seeds. Hence it is known when the seeds are ripe by the rattling of the capsule when shaken. The pulp has a sweet and not unpleasant taste, with a slight acidity. It is sucked and eaten raw by the natives. The seeds are about seventy-five in number. When fresh they are of a flesh-color; gathered before being quite

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ripe, they make a delicious preserve. The tree bears leaves, flowers and fruit all the year through; but the principal seasons for gathering the fruit are June and December. When ripe, the fruit turns yellow outside and is then gathered by hand and afterward split open and the seeds removed. They are then made to undergo a slight amount of fermentation, or sweating, lasting from one to two days, for the purpose of developing their color, and are afterwards exposed to the sun daily for about two weeks, or until they are thoroughly dry, when they are packed for exportation.

Theophra'sta. Named after *Theophrastus*, the father of Natural history. Nat. Ord. *Myrsinaceæ*.

A small genus of tropical shrubs, with unbranched stems, bearing on the top tufts of holly-like leaves, from the axils of some of which the racemes of flowers are produced. Several of the species are in cultivation in the green-house and are highly esteemed for their beautiful foliage. One of the species, *T. Jussæi*, a native of San Domingo, yields a seed from which the natives make a kind of bread. Young plants are obtained from seeds or from cuttings. Introduced in 1818. The showy foliaged species, *T. imperialis*, is now placed under *Chrysophyllum*, which see.

Thermo'psis. From *Thermos*, a Lupin, and *opsis*, resemblance; the species are not unlike Lupines. Nat. Ord. *Leguminosæ*.

A genus of North Asiatic and American hardy, perennial plants, with palmate, downy leaves, and yellow flowers in terminal clusters. *T. montana*, a native species, and *T. lanceolata*, from Siberia, are both in cultivation. They are increased most readily by seeds.

Thespe'sia. From *thespesios*, divine. *T. populnea* is frequently planted about churches in the tropics. Nat. Ord. *Malvaceæ*.

A small genus of tall herbs or trees found in Madagascar, the West Indies, South America and the Pacific Islands. *T. populnea*, the best known species, a common tree on the sea-shores of most eastern tropical countries, forms a tree forty or fifty feet high, with a dense head of foliage, on account of which it is called the Umbrella Tree in some countries, and is often planted for the sake of its shade and for forming avenues. Its leaves are large and pointed, and its very showy flowers are yellow in color, changing to purple. The wood is considered almost indestructible under water, and is therefore used largely for boat-building, its durability also rendering it valuable for cabinet-making and building purposes.

Theve'tia. Named after *Andr. Thevet*, a French monk, who travelled in Brazil and Guiana. Nat. Ord. *Apocynaceæ*.

A small genus of shrubs or small trees, found from Paraguay to Mexico. The flowers are yellow, borne in large, terminal cymes. Three species are in cultivation, but are found only in large collections. They are propagated by cuttings. Syn. *Cerbera*.

Thibau'dia. Named in honor of *Thiebaut de Berneaud*, Secretary of the Linnæan Society of Paris, and a botanical writer. Nat. Ord. *Vacciniaceæ*.

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A beautiful genus of evergreen shrubs, inhabiting Peru and New Grenada, a few species being also found in the East Indies. They have thick, leathery leaves, and axillary racemes of very handsome, tubular flowers, mostly scarlet, sometimes tipped with green or yellow. But few of the species are under cultivation.

Thimble-berry. See *Rubus occidentalis*.

Thin Grass. *Agrostis perennis*.

Thistle. A common name for the species of *Carduus*, *Cnicus*, and other plants.
Blessed or Holy. *Carduus benedictus* and *Silybum Marianum*.
Canada or Cursed. *Cirsium arvense*.
Cotton. *Onopordon Acanthium*.
Fish-bone or Herring-bone. *Chamæpeuce Casabonæ*.
Fuller's. *Dipsacus Fullonum*.
Globe. *Echinops sphærocephalus*.
Golden. *Scolymus Hispanicus*.
Hedgehog. The genus *Echinocactus*.
Melon. The genus *Melocactus*.
Milk or Our Lady's. *Silybum* (*Carduus*) *Marianum*.
Musk. *Carduus nutans*.
Saffron. *Carthamnus tinctorius*.
Scotch. See *Scotch Thistle*.
Sow. *Sonchus oleraceus*.
Star. *Centaurea Calcitrapa*.
Torch. The genus *Cereus*.
Yellow. *Argemone Mexicana*.

Thistle on Thistle. *Onopordon Acanthium*.

Thladia'ntha. From *thladias*, compressed, and *anthe*, a flower; owing, it is said, to the plant being first described from a pressed specimen. Nat. Ord. *Cucurbitaceæ*.

T. dubia, introduced from China in 1864, is a handsome perennial with long, climbing stems, bearing a profusion of bright yellow flowers, together with heart-shaped leaves of an agreeable, lively green color. It may be effectually employed for covering arbors, trellises, etc.

Thla'spi. From *thlas*, to bruise, the seeds being bruised as a condiment. Nat. Ord. *Cruciferæ*.

T. latifolium is a dwarf but vigorous perennial, with large root-leaves and flowers somewhat like *Arabis albida*, but larger. It is suitable for the front row of the herbaceous border, or for the rock garden, and is increased by division or by seed. None of the other species are worth cultivating.

Thoma'sia. Named in memory of *Peter* and *Abraham Thomas*, collectors of Swiss plants in the time of Haller. Nat. Ord. *Sterculiaceæ*.

A genus of beautiful green-house shrubs, natives of the southwestern districts of Australia, having purple, bluish or white flowers, and often lobed or cut leaves. The genus comprises over twenty species, of which five or six are valued as elegant green-house plants, and have very much the general appearance of some species of *Solanum*.

Thomas's (St.) Tree. *Bauhinia variegata* and *B. tomentosa*.

Thomso'nia. Named in honor of *Dr. A. T. Thompson*, author of "An Introduction to Botany." Nat. Ord. *Aroideæ*.

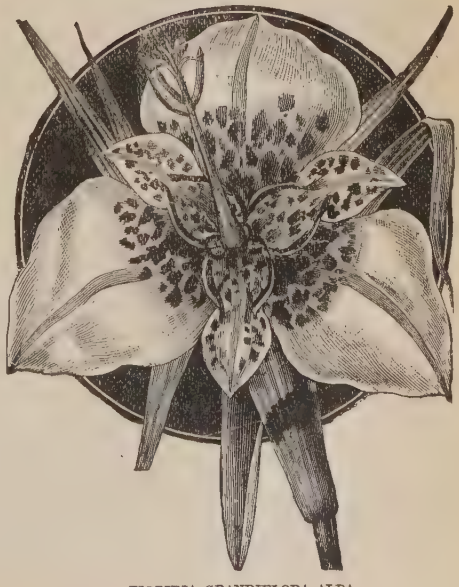
A genus of two species of ornamental stove-house plants, natives of the Himalayas and Khasya Mountains. The leaves are very much divided, and the stems are irregularly spotted

TODEA SUPERBA.

THEA CHINENSIS (TEA PLANT).

THRINAX ARGENTEA.

TEOSINTE (EUCHLÆNA).



TIGRIDIA GRANDIFLORA ALBA.

TOMATO (DWARF).

THUYA OCCIDENTALIS (SIBERIAN ARBOR VITÆ).

TORENIA ASIATICA.

TRITONIA AUREA.

TRADESCANTIA VITTATA.

TORENIA FOURNERI.

and mottled with brown. They require the same culture as the *Caladium*. Syn. *Pythonium*.

Thorn. A common name for various species of *Acacia*, *Cratægus*, etc.

Thorn. American Black or Pear. *Cratægus tomentosa*.
Christ's. *Paliurus aculeatus* and *Ziziphus Spina-Christi*.
Garland. *Paliurus aculeatus*.
Goat's. *Astragalus Tragacantha*.
Jerusalem. *Parkinsonia aculeata*.
Sea Buck, or Willow. *Hippophæ rhamnoides*.
Wait-a-bit. *Uncaria procumbens*.

Thorn Apple. See *Datura*.

Thorough-wax. *Buplerum rotundifolium*.

Thorough-wort. *Eupatorium perfoliatum*.

Thoui'nia. Named in honor of *André Thouin*, Professor of Agriculture, at Paris, 1747-1824. Nat. Ord. *Sapindaceæ*.

A genus of shrubby plants, sometimes climbing, natives of tropical America. *T. pinnata*, the only species introduced, is cultivated in the stove-house, and is an erect-growing plant with white flowers, disposed in terminal panicles. It is increased by cuttings of the ripened wood, and was introduced from St. Domingo in 1823.

Three-leaved Night-shade. The genus *Trillium*.

Three-seeded Mercury. *Acalypha Virginica*.

Three-thorned Acacia. The Honey Locust. *Gleditschia triacanthos*.

Thrift. See *Armeria vulgaris*.

Thri'nax. From *thrinax*, a fan; the shape of the leaves. Nat. Ord. *Palmaceæ*.

A genus of very beautiful West Indian Palms, commonly called, in Jamaica, Thatch Palms, from their leaves being used for thatching. One of the species, *T. argentea*, the Silver Thatch Palm, furnishes the leaves which, cut before they expand, are used in the manufacture of Palm-leaf hats or chip hats. This is a beautiful and ornamental species, and is a great favorite in all collections of green-house Palms. *T. Barbadensis*, *T. radiata* (syn. *T. elegans*), *T. elegantissima* and *T. graminea*, are all elegant, neat-growing Fan Palms, and of easy management. They were first introduced in 1800, and are increased by imported seeds.

Throat-wort. See *Trachelium*. Applied also to *Campanula Cervicaria* and *Digitalis purpurea*.

Thuja. The adopted spelling now is *Thuya*, which see.

Thunbe'rgia. Named in honor of *Charles P. Thunberg*, a celebrated botanist and traveler. Nat. Ord. *Acanthaceæ*.

A genus of very handsome, climbing plants. Some of the species, such as *T. alata*, *T. alba*, *T. aurantiaca*, and the varieties of the same, may be treated as half-hardy annuals. They usually seed freely; the seed should be sown in March in heat, bringing the young plants forward in the same temperature till May, when they may either be transferred to the borders of the flower-garden to be trained against a wall, or suffered to creep over rock-work, or they may be placed in large pots having a trellis attached, where they form very ornamental subjects for the green-house through the summer. The remaining species, as they do not produce seed in any quantity, require to be grown in the green-house. They should be frequently syringed to keep down attacks of red spider. At the end of the growing season they should be pruned closely back and kept dormant through the winter. The green-house species, *T. chrysops*, however, does better when allowed to grow on without pruning, nor should it be re-potted more than once a year, or it will not flower. The pure white, *T. fragrans*, is a free-growing green-house species, and its flowers are lasting and very sweet. *T. laurifolia* (syn. *T. Harrisii*), with flowers tubular in form and two inches in length, of a bright porcelain blue, with yellow throat, is one of the best green-house climbers we have. It is a rapid grower and blooms in profusion from November to May, its rare blue color making it one of the most attractive green-house, climbing plants. The beautiful, climbing, green-house plant, known in cultivation as *Hexacentris Mysorensis*, is by some botanists placed under this genus. *Meyenia erecta*, introduced from western Africa in 1857, has also been placed here, though both are better known in cultivation by the names given above, and under which we have described them in this work.

Thu'nia. Derivation of name not given. Nat. Ord. *Orchidaceæ*.

A small genus of Orchids from tropical Asia, formerly referred to *Phajus*, from which genus they are, however, readily distinguished by their growth, and by several other differences of a botanical character. *T. alba* is one of the best known species; the stems of this plant are round and usually about two feet high, clothed with leaves from the base upwards. The flowers are produced on a short, terminal raceme just as growth is finished; the sepal and petals are pure white; lip white, beautifully pencilled along the centre with purple and lilac. The species require to be grown in considerable heat and treated liberally with water. They do better when grown in pots than on blocks.

Thu'ya. Arbor Vitæ. From *thyon*, a sacrifice; the rosin of the Eastern variety is used instead of incense at sacrifices. Nat. Ord. *Coniferæ*.

This well-known genus of evergreens includes some of the most beautiful and useful evergreen shrubs we have in cultivation, not only for single plants for the lawn, but for hedges, either high or low, for which they are most admirably adapted. The common Arbor Vitæ, *T. occidentalis*, is the parent of most of the varieties grown for ornamental purposes. It is common from New York to Maine, in moist or swampy lands. In some localities it makes a tree of considerable size, valuable for the timber it yields, known as White Cedar. Of this species there is a beautiful sport, of globular form, with golden, green foliage, known as Parson's Arbor Vitæ. It is of slow growth, broad and compact, and suitable for cemeteries or any situation where a beautiful evergreen is wanted. Hovey's Arbor Vitæ is a seedling from the common Arbor Vitæ. Its dwarf, compact habit of growth makes it a splendid plant for growing in tubs for winter decoration. There are other varieties, with golden foliage, which are very beautiful. The Siberian Arbor Vitæ is one of the best for hedges or lawns. It is perfectly hardy, has a deeper color, is more compact, and in most

respects is more desirable than the common sort. Where, when, or how this species or variety originated is unknown to the best authority we have on evergreens, Josiah Hoopes, who claims it to be a variety of *T. occidentalis*. That it did not come from Siberia, as its name would indicate, is certain. There are several from the Pacific coast and from China. *T. orientalis* (syn. *Biota*), known as the Chinese Arbor Vitæ, is peculiar from its flattened branches. Thirty years ago, when *flat* bouquets were in fashion, this was used almost exclusively as a "back" or "frame" for the flowers, and is yet in some parts of the country used for that purpose. There are a number of seedling varieties, differing considerably in habit, form and shades of color of foliage, all desirable and well adapted for ornamental purposes.

Thuyo'psis. From *thuya* and *opsis*, a resemblance; referring to the affinity of the genus. Nat. Ord. *Coniferæ*.

T. dolobrata, the only species, a beautiful, tall, evergreen tree, with vigorous, horizontal branches, pendulous at the extremities, was introduced from Japan about 1860. Its variegated variety is very attractive; the branchlets being flat and silvery beneath, make it look like a Lycopodium. *T. borealis* is now placed under *Cupressus* as *C. Nutkænsis*, the Nookka Sound Cupressus.

Thyme. See *Thymus*.

Thymelæaceæ. A natural order of shrubs or small trees, remarkable for the great tenacity of their inner bark. There are about forty genera and over three hundred species, a few of them found in the northern hemisphere, rather more common within the tropics, but most abundant in South Africa and Australia. The order includes these well-known genera: *Daphne*, *Pimelia*, *Gnidia*, *Lagetta* and *Struthiola*.

Thymophy'lla aurea. A neat little annual composite from Colorado, of dwarf habit, forming a branching tuft about nine inches in diameter and four inches high. The flowers are in terminal heads, about half an inch across, resembling a single Marigold with a bright yellow ray and disk. It is of easy culture and prefers a rather dry soil. Syn. *Lowellia aurea*.

Thy'mus. Thyme. From *thumos*, courage, strength, the smell of Thyme being reviving, or from *thuo*, to perfume; being formerly used for incense in the temples. Nat. Ord. *Labiatæ*.

T. vulgaris, the Common or Garden Thyme, a native of Spain and Italy, is recorded to have been introduced to Britain in 1548. Its uses are well known. In the south of France an essential oil distilled from it is exported and sold as Marjoram-oil, for which it is substituted. The Romans were well acquainted with Thyme, which was one of the plants recommended to be grown for the sake of bees. There are probably a hundred acres of Thyme grown in the vicinity of New York, and dried for flavoring purposes. The broad-leaved, spreading variety is the kind used, the upright being useless for this purpose. The seed is thickly sown as soon as the ground gets warm in spring, and the plants are transplanted in July, in rows one foot apart, with nine inches between the plants. The crop matures by October of the year it is planted. It is common throughout Europe, and has to some

extent become naturalized in this country. The Lemon-scented Thyme is a hardy, dwarf, trailing evergreen, possessing the most agreeable perfume of any of the species. It is a variety of *T. serpyllum*, known as *T. citriodorus*, and is very distinct in appearance from the wild form. The branches root at the joints as they trail along the ground. It is used for the same purposes as the other species, and is found to attain its greatest perfection when grown in dry, sandy soil. Its gold and silver variegated-leaved varieties are much used in ribbon bordering, and are admirable plants for hanging baskets and rustic stands.

Thyrsaca'nthus. Thyrse-Flower. From *thyrsos*, a thyrse, and *Acanthus*. Nat. Ord. *Acanthaceæ*.

A fine genus of hot-house plants, containing a number of shrubs or herbs, natives of tropical America. They have large leaves, and red fascicled or cymose flowers, in a long, terminal raceme. *T. Schomburgkianus*, much better known in cultivation as *T. rutilans*, introduced from New Grenada in 1855, is one of the finest, and is highly prized for its long racemes of carmine-scarlet flowers. *T. callistachys* (syn. *Justicia lilacina*), *T. nitidus* (syn. *Justicia nitida*) and *T. strictus* (*Justicia longiracemosa* of gardens) are all desirable and beautiful green-house species. They require the same treatment as *Justicia*.

Thyrse, Thyrsiform. A kind of dense panicle like that of the Lilac.

Thyrse Flower. See *Thyrsacanthus*.

Thyrso'pteris. From *thyrsos*, a bunch or raceme, and *pteris*, a Fern; alluding to the contracted, fertile portion of the fronds. Nat. Ord. *Polypodiaceæ*.

T. elegans, the only species, is a very handsome Fern, not unlike a robust-growing *Davallia*. The fronds grow from four to six feet long, one-third of which is naked, and are of a brilliant green color. They are remarkable for producing on the same frond, distinct, contracted, fertile and leafy barren portions. It was introduced from Juan Fernandez in 1854, and requires the same treatment as the *Davallia*.

Thysano'tus. From *thysanotos*, fringed; the three inner sepals being fringed. Nat. Ord. *Liliaceæ*.

A small genus of green-house, herbaceous perennials from New South Wales, producing singular, purple, Iris-shaped flowers on slender scapes about a foot high. They are not much cultivated. Introduced in 1823.

Tiare'lla. From *tiara*, a Persian diadem; alluding to the shape of the capsules. Nat. Ord. *Saxifragaceæ*.

A small genus of hardy, perennial plants, natives chiefly of the United States, one, however, being found in the Himalayas. *T. cordifolia*, False Mitre-wort, the most common species, resembles *Mitella* in general appearance and is well suited for the rock-work or herbaceous border.

Tick Seed. The genus *Coreopsis*.

Tick Trefoil. See *Desmodium*.

Tiger Flower or **Tiger Iris.** See *Tigridia*.

Tiger Lily. *Lilium tigrinum*.

Ti'glium. A genus now included under Croton.

TIC

Tico'rea. The name of *T. fœtida* in Guiana. Nat. Ord. *Rutaceæ.*

A small genus of trees or shrubs, natives of Brazil and Guiana. *T. fœtida* and *T. jasminiflora*, both bearing white, rather showy flowers, have been introduced, but are seldom found in cultivation.

Tigri'dia. Tiger flower. From *tigris*, a tiger, and *eidos*, like; in reference to the spotted flowers. Nat. Ord. *Iridaceæ.*

A small genus of very beautiful Mexican bulbs, introduced in 1796. The flowers are indeed remarkable; and though they are of very short duration, lasting only about half the day, they are produced in such abundance in succession as to make their culture desirable and interesting. One plant will continue flowering for two or three months in succession, and during the whole of that time will make a splendid display in the garden. Of the several species or varieties introduced into cultivation there are but two that succeed really well, and they rarely, if ever, fail of producing an abundance of flowers; these are *T. conchiflora*, with yellow flowers, and *T. pavonia*, with bright, dark orange-red flowers. *T. p. grandiflora*, a variety of the preceding, has larger flowers of the same color. Each of these is spotted, characteristic of the order. *T. p. grandiflora alba* has large flowers of a pearl-white color, marked at the base of each divison with large, reddish-brown or chestnut-colored spots, on a yellow ground, forming a fine contrast with the white petals. They grow freely with ordinary garden culture, preferring a light, rich and moist soil, and will not succeed in a very dry situation. These bulbs flower during the rainy season in Mexico, and they consequently require considerable water when under cultivation. The bulbs require to be taken up soon after the first frost, tied up in bunches of convenient size, without cutting off the stems, and hung up in any dry room free from frost, where they can remain until the time for re-planting. A place must be selected where they cannot be reached by mice, which are very destructive to the bulbs.

Tile-root. See *Geissorhiza.*

Ti'lia. Basswood, Linden. The old Latin name used by Virgil and Pliny. In Dutch it is called Linden, in Anglo-Saxon, Lind, and in English, Lime Tree. Nat. Ord. *Tiliaceæ.*

A genus of tall-growing, deciduous trees, common throughout this country and Europe. The European Linden, *T. Europæa*, has larger leaves than our native species, and is the one that is usually planted as an ornamental tree. *T. Americana* grows to a great size in this country, and furnishes a large amount of lumber, used chiefly in cabinet work. It is soft, of a reddish tinge, and unfit for work requiring strength, or where it is exposed to the weather. This is the species so extensively used as a street tree at Washington, D. C., where it luxuriates. *T. heterophylla* has larger leaves than the preceding; they are smooth and bright green above, and silvery white underneath. It does not grow to so great a size, but the lumber is far more valuable, being almost pure white, and works more easily and smoother. The two species are designated as Red and White Basswood. The inner bark of the Linden is popularly

TIM

known as Bass, and was formerly much used for tying, but is now almost entirely superseded by *Raffia*, which see.

Tilia'ceæ. A natural order of trees or shrubs, closely allied to *Malvaceæ* and *Sterculiaceæ*, from which it is chiefly distinguished by the stamens. The species are numerous, especially within the tropics, though found dispersed over both the northern and southern temperate regions. Several of the species furnish good cord. Jute is manufactured from the bark of *Corchorus capsularis*, and the *Tilia Europæa*, or Linden, furnishes the Russian or Archangel mats.

Tilla'ndsia. Long Moss, Black Moss, Gray Moss and Florida Moss. Named in honor of *Elias Tillands*, Professor of Medicine at Abo, Sweden. Nat. Ord. *Bromeliaceæ.*

An interesting genus of epiphytal plants, natives of the United States from the Carolinas and southward, the West Indies and South America. They generally grow upon trees in dense forests. "Some of these plants serve as reservoirs for water, which flows down the channeled leaves; these are dilated at the base, so as to form a bottle-like cavity capable of holding a pint or more. Travelers tap these vegetable pitchers for the sake of the grateful fluid they contain. *T. utriculata*, a native of Jamaica, and many others, have this desirable property of storing up water. Dr. Gardner, in his 'Travels in Brazil,' relates that a certain species of *Utricularia* grows only in the water collected in the bottom of the leaves of a large *Tillandsia*. The aquatic plant throws out runners, which direct themselves to the nearest *Tillandsia*, and there form new plants; and in this way no less than six *Tillandsias* may sometimes be seen connected together." All the species delight in abundant sunlight, a high temperature, and plenty of water during summer. In winter they should only get enough water to keep the soil moist. They are exceedingly beautiful when in flower, *T. carinata*, *T. Morreni*, *T. psittacina*, *T. splendens* and *T. Lindeni* being perhaps the most richly colored of the genus. A number of species belonging to *Guzmannia*, *Allartia*, *Bonapartea*, *Platystachya*, *Pitcairnia*, *Vriesia*, etc., are now included by Hooker and Bentham under this genus, which contains over one hundred and twenty species. Florida Moss is *T. usneoides*, and grows as far north as the Dismal Swamp in Virginia. It is collected in great quantities, steeped in water, or buried in the earth, until the outer surface is rotted off, when it leaves a dark, coarse, tough fibre, not unlike horse-hair, which is used for stuffing cushions, mattresses, and various forms of upholstery. This moss, as gathered, is used to ornament frames or rustic work in drawing-rooms, and for these and other ornamental purposes large quantities of it are sent annually to all our large cities. In moist rooms, like a conservatory, it will grow very well when thrown loosely over a frame, or suspended in any other way. It is a singular circumstance that two such widely different-appearing plants as the "Florida Moss" and the delicious Pineapple should belong to the same natural order.

Timothy. Herd's Grass, *Phleum pratense*, which see.

Tina'ntia. Named after *Tinant*, a Belgian botanist. Nat. Ord. *Commelinaceæ.*

A small genus of herbaceous plants of a somewhat shrubby habit, natives of Central America. *T. fugax erecta* is a half-hardy perennial, closely allied to *Tradescantia.* It grows well in any garden soil and is most easily increased by seeds. It is found in cultivation under the names of *Tradescantia erecta*, *T. latifolia* and *T. undata.*

Ti'nnea Named in honor of *Mdlle. Tinne*, a traveler in Egypt. Nat. Ord. *Labiatæ.*

A small genus of woolly, herbaceous plants or small shrubs, natives of tropical Africa. *T. Æthopica*, the only introduced species, is a hoary, dwarf shrub, bearing fragrant, maroon-purple flowers very freely in short peduncles. It was introduced in 1867 and is readily increased by cuttings.

Tipula'ria. Crane-Fly Orchis. Named from a fancied resemblance of the flowers to insects of the genus *Tipula.* Nat. Ord. *Orchidaceæ.*

A low-growing Orchid, rarely found, a native of the Northern States from Massachusetts to Michigan. The flower scape is from twelve to eighteen inches high, and bears numerous small, greenish flowers tinged with purple.

Tissue. The material out of which the elementary organs of plants are constructed, as cells, fibres, membranes, etc.

Titho'nia. A name of mythological derivation, from *Tithonus*, the favorite of Aurora. Nat. Ord. *Compositæ.*

A small genus of half-hardy annuals, natives of Mexico, Central America and Cuba. *S. tagetiflora*, cultivated for its orange-colored flowers, is easily raised from seeds sown in heat, in spring.

Toad Flax. See *Linaria.*

Toad-Flower. African. A common name for several species of *Stapelia.*

Toad Stools. The common name of various species of Fungi, frequently mistaken for Mushrooms.

Tobacco. See *Nicotiana.*

Toco'ca. A name used by the natives of Guiana, and applied to a genus of *Melastomaceæ*, consisting of Brazilian shrubs, whose leaf-stalks have very generally attached to them a kind of bladder, divided longitudinally into two compartments. *T. Guianensis* is in cultivation; in its native habitat its fruits are edible, and their juice is sometimes used as ink. The various *Sphærogynes* are included by some botanists under this genus.

Todda'lia. From *Kaka Toddali*, the name of *T. aculeata* in Malabar. A small genus of *Rutaceæ*, confined to the tropics of Asia and Africa. *T. aculeata* is an interesting shrub, widely dispersed through tropical Asia, and extending as far south as the Mauritius. The fresh bark of the roots is said to be used as a cure for the remittent fever caught in the jungles of the Indian hills. Three species have been introduced, which are readily increased by cuttings.

Toddy Palm. A common name for *Caryota urens.*

To'dea. Named in honor of *H. J. Tode*, of Mecklenburg, an experienced mycologist. A small genus of Ferns occurring principally in South Africa and New Zealand, having the

capsules of *Osmunda*, but the habit of *Polypodium.* They have an erect, sometimes elongated, caudex, and bi-pinnate fronds, which, in the group *Todea* proper, are thick and firm in texture, as in *T. barbara* (syn. *T. Africana*). The group *Lepidopteris*, all from New Zealand, have pellucid, membranaceous fronds, and are among the most beautiful dwarf Ferns in cultivation. *T. superba* is a magnificent plant with fronds two to four feet in length. They thrive best in a cool house, facing the north, requiring plenty of shade and moisture, and will even stand a few degrees of frost without injury.

Tofie'ldia. False Asphodel. Named after *Mr. Tofield*, an English botanist of the last century. Nat. Ord. *Liliaceæ.*

A genus consisting of a few perennial plants, natives of the colder parts of Europe, North America and the regions of the Andes. The three native species have short racemes of whitish flowers, and are found from the pine barrens of New Jersey to Maine, Michigan and northward. None of the species have any particular interest or beauty.

To'lmiea. Named by Torrey and Gray in honor of *Dr. Tolmie*, Surgeon of the Hudson's Bay Co. at Puget Sound. Nat. Ord. *Saxifragaceæ.*

T. Menziesii, the only described species, is a hardy, herbaceous plant with a perennial rhizome. The rather large, greenish, nodding flowers are borne on a slender, elongated raceme. It propagates naturally and freely by adventitious buds, produced at the junction of the leaf-stalk with the blade, in the manner of Begonias. It is a native of Northwest America and has been described under the names of both *Tiarella* and *Heuchera Menziesii.*

Tol'pis. Named by Adanson, probably without any meaning. Nat. Ord. *Compositæ.*

A genus of pretty, hardy, annual or perennial plants, natives of the Mediterranean region and the Canary Islands. Several species are in cultivation, and are well suited for the ornamental border, where the seeds can be sown in spring.

Tolu Balsam Tree. The common name for *Myroxylon Toluiferum*, which see.

Tomato. *Lycopersicum esculentum.* The Tomato was first introduced into England in 1596, and it was for many years grown only as an ornamental plant, or for its medicinal properties. It was then known by the common name of Love Apple. The "Virtues" of the Tomato were described as follows by Parkinson in 1629: "In hot countries, where they naturally growe, they are much eaten of the people, to cool and quench the heate and thirst of their hot stomaches. The Apples are also boyled, or infused in oyle in the sunne." The Tomato was first used as a vegetable in Italy, and soon after in France and England; it is, however, but comparatively little grown in the open air in England, as their summers are not warm enough to ripen the fruit to anything like perfection; but it is a favorite fruit there grown under glass. The Tomato has not been in general use in this country for more than fifty years, and most of our choice varieties are of recent introduction. New varieties, obtained by selection, are offered annually, each one claiming to be superior in

earliness and productiveness; the varieties of late introduction are undoubtedly superior to the older sorts, earliness and solidity being the great desiderata. Tomatoes are now extensively grown for canning, and many thousands of acres are used in growing them for that purpose. They are also forced advantageously for winter use, bringing good prices till the crop from Florida comes in.

Tomato. Cannibal's. *Solanum anthropophagorum.*

Tomato. Strawberry. See *Physalis Alkekengi.*

Tomentose. Covered with dense, rather short, rigid hairs, so as to be sensibly perceptible to the touch.

Tonga Plant. See *Epipremnum.*

Tongue Grass. A common name for *Lepidium sativum.*

Tongue-shaped. Long, flat, but thickish and blunt; like the leaves of some Aloes.

Tonguin or **Tonga Bean.** See *Dipterix odorata.*

Toothache Grass. See *Otenium Americanum.*

Toothache Tree. See *Xanthoxylum.*

Toothed. Dentate; having small divisions on the margin.

Tooth-violet. The popular name of *Dentaria bulbifera.*

Tooth-wort. A common name for *Lathræa,* also for *Dentaria,* which see.

Top Dressing. See Fertilizers.

Torch Lily, Torch Flower. Popular names for *Tritoma* (*Kniphofia*).

Torch Thistle. An early name given to various species of *Cereus.*

Tore'nia. In honor of *Olof Toren,* a Swedish clergyman, who discovered *T. Asiatica* and other plants in China. Nat. Ord. *Scrophulariaceæ.*

A small genus of very beautiful, trailing annuals and perennials, natives of China and the East Indies. For the green-house or conservatory these plants, with their numerous, dark-purple flowers, are a great attraction. They also succeed well in a moist, shady border, but will not endure our hot, sunny weather. They are all readily increased by cuttings or from seed. *T. Fournieri,* is an upright-growing plant of branching and graceful habit, with a profusion of beautiful violet flowers. *T. Bailloni,* introduced in 1878, is an entirely distinct species, having deep-yellow and maroon-colored flowers. All make excellent basket or vase plants. They must be kept at a temperature, in winter, of not less than 60° at night, and they are at all times impatient of being chilled. Propagated by seeds or cuttings.

Tormenti'lla. A small genus now included under *Potentilla.*

Torne'lia. A synonym of *Monstera.*

Torose. Torulose. A cylindrical body, irregularly swollen.

Torrey'a. Named in honor of *Dr. John Torrey,* one of the most distinguished of American botanists. Nat. Ord. *Coniferæ.*

This genus is a branch of the Yew family, and is represented in this country by *T. taxifolia,* a native of Florida, a perfectly hardy and beautiful species, and one of the most attractive and desirable evergreens. *T. Californica* is known as the California Nutmeg.

Tortilis. Susceptible of twisting.

Totara Pine. *Podocarpus Totara.*

Touch-me-not, Balsam, Jewel Weed, is *Impatiens Noli-me-tangere,* a marshy plant, common from New York southward. See *Impatiens.*

Tournefo'rtia. In memory of *Joseph Pitton de Tournefort,* the distinguished author of an arrangement of plants under the title of "*Institutiones Rei Herbariæ,*" and other botanical works, from 1694 to 1717; his first work, the "*Institutiones,*" laid the foundation of the arrangement now followed, called the Jussieuan, or Natural System. Nat. Ord. *Boraginaceæ.*

A genus of evergreen, twining shrubs inhabiting the tropics of both hemispheres, and extending as far north as the Canaries and Central Russia. *T. heliotropioides,* from Buenos Ayres, is a very beautiful species, and is occasionally grown for its pale-lilac flowers, which are arranged similar to those of the Heliotrope. It is commonly called the "Hardy Heliotrope," and is easily raised from seeds in spring.

Tova'ria. A synonym of *Smilacina.*

Tovomi'ta. From *tovomite,* the Caribbean name of *T. Guianensis.* Nat. Ord. *Guttiferæ.*

A genus of shrubs or trees with resinous juice, natives of tropical South America and the West India Islands. Three species have been introduced to cultivation, but are seldom found except in large collections. They are generally propagated by cuttings of the ripened wood in sand.

Toxicode'ndron. From *toxicon,* poison, and *dendron,* a tree; alluding to the poisonous nature of the fruit. Nat. Ord. *Apocynaceæ.*

A genus of small, rigid, much-branched trees, peculiar to South Africa. *T. capense,* the only cultivated species, is found principally in botanic gardens.

Toxicophlæ'a. From *toxicon,* poison, and *phloros,* bark; in allusion to the poisonous bark. A genus of *Apocynaceæ* containing one or two species from the Cape of Good Hope. *T. spectabilis,* introduced in 1872, has the general appearance of an Ixora, and bears its pure white, exceedingly fragrant flowers in terminal and axillary corymbs, which form a very large, dense spray, often over two feet in length. It is increased readily by cuttings.

Trache'lium. Throatwort. From *trachelos,* the neck; in allusion to the efficacy of the plant in diseases of the throat; hence the common name *Throatwort.* Nat. Ord. *Campanulaceæ.*

Very pretty, half-hardy, biennial plants, with showy, bell-shaped, blue flowers, varying from very dark blue to nearly white, natives of the Mediterranean coast. It is an elegant plant for vases, and such-like purposes. Seeds should be sown in spring for flowering the next season, and the plants protected by a frame in winter.

Trachelospe'rmum. From *trachelos,* the neck, and *sperma,* a seed; alluding to the apical elongation of the seed. Nat. Ord. *Apocynaceæ.*

A small genus of green-house shrubs, natives of the East Indies, Eastern Asia and

Japan. *T. Thunbergii*, known generally in gardens, where it has long been a favorite, as *Rhyncospermum jasminoides*, is one of the best plants of its class, and is equally valuable grown as a specimen pot-plant or as a climber on the rafters or back wall of the green-house. This plant is now a conspicuous feature in the gardens of some of the cities of the Southern States. It may be seen in New Orleans climbing to the third stories and completely draping some of the largest houses with its brilliant, lustrous, evergreen leaves; the delicious perfume of the pure white, abundant flowers pervading, during the month of April, the whole atmosphere of the neighborhood.

Trachy'mene Cœrulea. A synonym for *Didiscus Cœrulea.*

Tradesca'ntia. Spiderwort. Named in honor of *John Tradescant*, gardener to Charles First, who introduced the first species to Europe. Nat. Ord. *Commelynaceæ.*

An extensive genus of green-house or hardy, herbaceous perennials, natives of North and tropical America. *T. Virginica*, the common Spider-wort or Widow's-tears of the gardens, is an interesting, hardy border plant, on account of the continual succession of flowers, which are freely produced all season. It has long, grass-like foliage, and the flowers are borne in terminal clusters on stems, one to two feet in height. Besides the type, which has showy, purple-blue flowers, there are several varieties, one with double violet, one single rose-colored, one single lilac and one with single white blossoms. They may easily be increased by division in spring. Of the tender sorts, *T. discolor* (syn. *Rhoeo*) and *T. Warscewicziana* form stately plants, with the appearance of a Palm or Pandanus, and are excellent centre-plants for vases, hanging baskets, etc. The drooping, or creeping, sorts are also desirable plants for like purposes. The species best known as *T. zebrina*, but which has many aliases (see *Zebrina*), a native of South America, is largely grown as a basket-plant, and also as a house-plant, thriving best in a moist, shady situation, but succeeding well in the dry atmosphere of the sitting-room. This and the species known as *T. repens*, and its beautifully white striped variety, *T. r. vittata*, *T. aquatica* and others, are among the most generally grown of our house-plants, where they are known as "Wandering Jew." They grow freely in water, making a drooping fringe of from two to four feet, and they are used in a variety of forms in the window culture of plants. Cuttings of the green-house species root readily at any season.

Tra'gacanth Gum Plant. *Astragalus Tragacantha.*

Tra'gia. A genus named in honor of *Tragus*, an ancient German botanist, who, according to the fashion of the times, assumed a classical title, his true name having been Jerome Bock. Nat. Ord. *Euphorbiaceæ.*

A genus of herbs or shrubs, widely distributed in sub-tropical regions. A few of the species have been introduced, but possess little beauty and are not particularly interesting.

Tragopo'gon. Goat's Beard. Vegetable Oyster. From *tragos*, a goat, and *pogon*, a beard; in allusion to the long, silky beards of the seeds. Nat. Ord. *Compositæ.*

Ornamental, biennial plants, natives of Europe, the most remarkable of which are *T. pratensis*, the popular name of which is Go-to-bed-at-noon, from the flowers closing in the middle of the day, and which has large, yellow flowers and very curious feathery heads of seeds; and *T. porrifolius*, the common Salsify, or Oyster Plant, which has purple flowers, and the roots of which are extensively grown and highly valued as a vegetable. It is a hardy biennial, native of Great Britain and most other parts of Europe. The seeds should be sown early in deep, rich soil. Culture the same as for Carrots or Parsnips.

Tragopy'rum. Goat's Wheat. From *tragos*, a goat, and *pyros*, wheat. Nat. Ord. *Polygonaceæ.*

T. lanceolatum, a native of Siberia, is a dwarf, ornamental shrub, about two feet high, with lanceolate leaves, producing spikes of white or pink flowers in July or August. It is the only species under cultivation. Introduced in 1770.

Trailing Arbutus. See *Epigæa repens.*

Transplanting. As nearly all fruit and ornamental trees and shrubs are raised first in nurseries and removed to their position in the orchard, lawn or shrubbery, and as upon the success of the operation the after vigor of the plant or tree, in a great measure, depends, a few hints on this subject may be of interest.

The first great requisite to success in all kinds of planting is the proper preparation of the soil. This should be dry, either naturally or made so by thorough draining, and, if done on a large scale, should be well prepared by twice plowing, using the sub-soil plow after the common one at the second plowing. To ensure a good growth, the land should be in as good condition as for a crop of potatoes or corn. Of course the methods of transplanting vary considerably, according to different plants and the manner in which their roots are disposed. Trees or shrubs, more especially when received from a nursery, no matter how carefully they may have been lifted, lose a portion of their roots, and consequently the balance that existed in the structure of the tree is deranged. This must be restored by proper pruning, adapted to the size, form and condition of the tree and the loss it has sustained. When lifting a tree for transplanting, it is best to tie up, with some soft cord, any branches that may be near the base, and to commence digging a trench outside the line to which it is calculated the roots will reach. Then use a fork from the base of the tree outwards to separate the roots, but preserve as large a ball of earth as it may be convenient to move. All roots which may have been mutilated had better be cut clean off before replanting.

PLANTING.—In planting, holes must be dug large enough to admit of the roots of the tree to spread out in their natural position. The tree being then held in an upright position, the roots should be carefully spread and covered with the best of the surface-soil, the tree in the meantime being moved gently to enable the soil to fill every interstice and bring every root in contact with the soil. When the earth is partially filled in, a pail of

water may be thrown in to settle and wash in the earth around the roots. Then fill in the remainder and firm gently with the feet.

STAKING.—If trees are tall and much exposed to winds, a stake should be planted with the tree, to which it should be tied in such a manner as to avoid chafing. Large trees may be secured by three or four guys, fastened firmly to stakes.

MULCHING.—When the tree is planted, mulch it as far as the roots extend, and a foot beyond, with five or six inches of rough manure or litter. This is particularly necessary in dry ground, and is highly advantageous both in spring and fall planting. It tends greatly to prevent evaporation and to keep the soil moist, even in dry weather.

SEASON FOR TRANSPLANTING.—The advantages of planting deciduous shrubs and trees during autumn (say from October 1st to December 1st) admit of no question. As transplanting makes inevitable the cutting or disruption of a large portion of the roots, these cannot throw out new fibres until the broken roots become callused. If this is not completed before the spring drought comes, there is much danger that the plant will either die or have a struggle for life, during the first summer. If planted in autumn, however, the broken roots will not only have time to form a callus, but, as the soil is then warm and congenial, will throw out small fibres which will permanently establish the tree or shrub, and enable it to start with vigor in the spring. If circumstances will not permit of planting until spring, it is better to obtain deciduous trees and shrubs in the autumn, heel them carefully in a slanting position, where the callus will form, and they will be ready for planting as soon as the ground is open in spring. Autumn planting is especially necessary with Larches, Japan Quince, Evergreen Thorn and other plants which become excited by the first mild days of spring, and in that condition may die by transplanting. The exceptions are Magnolias, Tulip Trees, etc., in which there are certain structural conditions which make them succeed best in spring planting. Many Evergreens may be planted to advantage during September, more especially if the season is a moist one, and the ground in which they are planted is sufficiently near the nursery for them to escape heating or the roots drying out in transit.

HERBACEOUS PERENNIALS.—A large number of the hardy, herbaceous perennials, if properly cared for, can be transplanted with better results in the latter part of summer or autumn than in the spring. All early-flowering plants, which start into growth as soon as the snow is off in spring, make their preparation for this the previous autumn. The middle or last of August is about the proper season to transplant such, so that they can finish their autumnal growth when they are to remain through the winter. All such early flowering plants as Violets, Trilliums, Erythroniums, Cypripediums, etc., are of this class. The various varieties of *L. speciosum*, *L. Washingtonianum*, *L. Humboldtii*, etc., we find to flower better the following season if transplanted early in autumn than if left until their growth had matured or until spring.

Tra'pa. Water Caltraps, Water Chestnut. From *calcitrapa*, an ancient instrument in warfare with four spikes; the fruit of some of the species is armed with four spikes or horns. Nat. Ord. *Onograceæ*.

A genus of aquatic plants, natives of Europe, India, China and Japan. They are remarkable for the shape of their seeds, some of which resemble a bullock's head and horns. The seeds of all these plants abound in starch, and are much used as food. Those of *T. natans*, called Jesuit's Nuts at Venice, are ground into flour and made into bread in some parts of Southern Europe. In Kashmir, and other parts of the East, the large seeds of *T. bispinosa*, which are sweet and edible, and known under the name of Tinghara Nuts, are common food, and a large portion of the inhabitants subsist on them for several months of the year.

Trape'lla Sinensis. This is a highly curious, floating, aquatic plant, the type of a new genus of anomalous structure, referred to the Nat. Ord. *Pedaliaceæ*. It bears a strong resemblance to Trapa in its foliage, but there the resemblance ceases. The small flowers have a funnel-shaped corolla, and the narrow seed-vessels are furnished with usually three long, rigid, hooked appendages, something in the way of the fruit of Martynia, and other members of the same order. It is a native of Ichang and other parts of China and Japan.

Trapeziform. Having four sides, the opposite ones not parallel.

Trautvette'ria. A name given by some botanists to *Cimicifuga*, or *Actæa palmata*.

Traveler's Joy. A common name for *Clematis vitalba*.

Traveler's Tree. A name given to the *Urania speciosa* of Madagascar.

Treacle Mustard. *Erysimum cheiranthoides* and *Lepidium campestre*.

Tread-softly, Spurge Nettle. See *Jatropha urens*.

Treasure Flower. A common name for *Gazania*.

Tree Fern. A common name for Ferns with a tree-like stem, as many species of *Alsophila*, *Dicksonia*, *Cyathea*, etc.

Tree Mallow. *Lavatera arborea*.

Tree of Chastity. *Vitex Agnus-castus*.

Tree of Heaven. See *Ailantus*.

Tree of Sadness. *Nyctanthes arbor-tristis*.

Tree of the Sun. A Japanese name for *Retinospora obtusa*.

Trefoil. See *Trifolium*.
Bird's-foot. *Lotus corniculatus*.
Crimson. *Trifolium incanum*.
Yellow. *Medicago lupulina*.

Trema'ndra. From *tremo*, to tremble, and *andros*, a male; the anthers vibrate with the least movement of the air. Nat. Ord. *Tremandraceæ*.

This genus consists of but two known species, both small green-house shrubs, natives of New Holland. They are delicate plants, covered with stellate down, and have axillary purple flowers. They are but rarely cultivated, except *T. verticillata*, which is a very beautiful plant, and has long been a favorite

in choice collections. See *Tetratheca* and *Platytheca*.

Tremandra'ceæ. A small order of heath-like shrubs, all Australian, with small, entire leaves often verticillate, and red, blue, or rarely white flowers, on slender axillary pedicels. The order contains three genera and over twenty species.

Trenching. This is a means of preparing the soil but little practiced in the United States, though still much in use in old English gardens. It consists in making a trench from one and a half to two feet deep, and of nearly the same width, the earth from which is wheeled to the rear of the ground to be trenched; then a line is set across the bed to the width of the excavation (one and a half or two feet, as it may be); the top spit of this is thrown in the bottom of the trench, the under part being thrown on the top; in a word, trenching is simply reversing the soil, turning it upside down to such a depth as may be decided on. The practice is proper enough in soils that are deep enough; but when trenching is practiced in say a top soil only twelve inches deep, and a clayey sub-soil is thrown on the top, or even mixed well with the top soil, injury may be done to the soil from which it will never recover. A sub-soil of sand is not quite as bad thrown on the top or mixed with the soil, but in either case the sub-soil should only be loosened, as in sub-soiling (which see), and allowed to remain without being mixed with or thrown on the top of the soil proper.

Treve'sia. Called after the family *Treves de Bonfigli*, at Padua, who were supporters of botanical research. Nat. Ord. *Araliaceæ*.

A genus, numbering eight or nine species, natives of tropical Asia and the Malayan Archipelago. *T. eminens* and *T. palmata*, the best known species, have beautiful, large, palmate, or pinnately-divided, leaves, and make very ornamental plants for a warm conservatory, and are propagated easily by cuttings. Syn. *Gastonia*.

Trevo'a. Named in honor of *Trevo*, a Spanish botanist. Nat. Ord. *Rhamnaceæ*.

A small genus of interesting green-house shrubs, natives of South America. *T. trinervis* and *T. quinquenervia* are in cultivation, but seldom found except in botanical collections.

Trew'ia. Named in honor of *J. C. Trew*, of Nuremberg, a botanical author. Nat. Ord. *Euphorbiaceæ*.

A small genus of stove-house plants, natives of the East Indies. *T. nudiflora*, the only species in cultivation, thrives best in a compost of sandy loam and leaf mould. It was introduced in 1796, and is readily increased by cuttings.

Triadelphous. Having the stamens collected into three distinct bundles, the filaments of those in separate bundles cohering.

Tria'nea. Named in honor of *M. Jose Triana*, a botanist and traveler in Columbia. Nat. Ord. *Hydrocharidaceæ*.

A genus of green-house, stoloniferous plants, natives of Mexico and South America, now regarded by Bentham and Hooker as synonymous with *Limnobium*.

Trichi'nium. From *trichinos*, hairy; flowers covered with knotted hairs. Nat. Ord. *Amaranthaceæ*.

A genus of annuals and herbaceous perennials from Australia. The flowers of some of the species are extremely ornamental. Their yellow, crimson, white, or pink flowers, are produced in terminal heads or spikes. The perennials require to be grown in the green-house. The annuals should be started in seed boxes in February, as our seasons are too short for their development if the seed is sown in the border.

Trichoce'ntrum. From *thrix, trichos*, a hair, and *centron*, a spur or centre; alluding to the long, thin spur of the labellum. Nat. Ord. *Orchidaceæ*.

A considerable genus of epiphytal Orchids from South and Central America. Most of the species are not considered worth growing. *T. albo-purpureum*, from the Rio Negro, is an exceedingly beautiful plant. Petals maroon-brown inside, and yellowish-green outside; lip large, white, with two bright purple spots. *T. Pfavii* and one or two other species have very beautiful flowers. They should be grown on blocks or cork, or in small baskets in a moderate temperature. They bloom freely, and require but little care. Introduced in 1835.

Trichode'sma. From *thrix, trichos*, a hair, and *desmos*, a bond; the anthers are bound to each other by hairs. Nat. Ord. *Boraginaceæ*.

A genus of strigose annuals, natives of India, Egypt and South Africa, with the habit of *Borago* and *Cynoglossum*. *T. zeylanicum*, Ceylon Borage, the only species in cultivation, is a rather coarse, hardy annual, with blue flowers, thriving under ordinary treatment.

Tricholæ'na. From *thrix, trichos*, a hair, and *chlaina*, a cassock. Nat. Ord. *Graminaceæ*.

A small genus of very pretty grasses, generally included in the genus *Panicum*. A few are found in collections of ornamental grasses in the green-house.

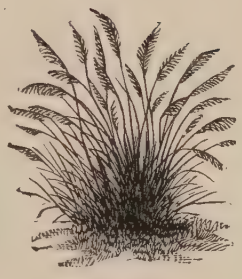
Tricho'manes. From *thrix, trichos* a hair, and *manos*, soft; the shining stems appear like soft hair. Nat. Ord. *Polypodiaceæ*.

An extensive, varied, and beautiful genus of Ferns, found abundantly in the moist, shady woods of the tropics in both the Old and the New Worlds. *T. radicans*, a beautiful species, is found on the coast of Ireland. Many of the species are cultivated for the beauty of their fronds, which have an almost transparent appearance. Propagated by division or from spores. *Feea, Hymenostachys, Involucraria, Lacostea, Lecanium, Microgonium* and *Phlebiophyllum*, are now included in this genus, which comprises over one hundred species.

Trichone'ma. From *thrix, trichos*, a hair, and *nema*, a filament; stamens clothed with minute hairs. Nat. Ord. *Iridaceæ*.

A genus of beautiful little crocus-like, bulbous plants, with red, yellow, purple and white flowers, borne singly on slender scapes. They are natives of Spain, Italy, and the Cape of Good Hope. Like most bulbs from those localities, they require to be grown in the green-house. Propagated by offsets. Introduced in 1818. Called also *Romulea*.

TRILLIUM GRANDIFLORUM.



TRICHOLÆNA.

TRITELIA UNIFLORA.

TRITOMA GRANDIFLORA MAJOR.

TRIFOLIUM PRATENSE PERENNE (MAMMOTH CLOVER).

TRIFOLIUM REPENS (WHITE CLOVER).

TRICHOSANTHES.

TROPÆOLUM (TALL).

TROPÆOLUM LOBBIANUM.

TROPÆOLUM PENTAPHYLLUM.

TROPÆOLUM PEREGRINUM (CANARY BIRD VINE).

Trichope'talum. From *thrix, trichos*, a hair, and *petalon*, a petal; the inner perianth segments are fringed. Nat. Ord. *Liliaceæ.*

T. stellatum, the only described species, is a curious, half-hardy perennial, with a thick rhizome and greenish-white flowers, and succeeds best if planted out in a frame from which the frost is entirely excluded. It was introduced from Chili in 1828, and is increased by division of the rhizome.

Trichopi'lia. From *thrix, trichos*, a hair, and *pilion*, a cap; in allusion to the anthers being concealed below a cap surmounted by tufts of hair. Nat. Ord. *Orchidaceæ.*

A small genus of very beautiful epiphytal Orchids, natives of Central America and the West Indies. The flowers are white, yellow, pale pink, or greenish white. *T. suavis*, a species from Central America, is one of the finest of the genus. Its flowers are very large, pale nankeen color, with white lip very clearly marked with lilac, and are very beautiful and fragrant. *T. coccinea, T. crispa, T. fragrans* and *T. tortilis* are all desirable kinds. All the species may be grown in a cool house, and succeed best in pots. Syn. *Pilumna.*

Trichosa'nthes. Snake Cucumber. From *thrix, trichos*, a hair, and *anthos*, a flower; the flowers are ciliated. Nat. Ord. *Cucurbitaceæ.*

A genus of climbing annuals from China and the East Indies, commonly known as Snake Cucumbers. *T. anguina* (syn. *T. colubrina*) is a very curious plant with white flowers, every petal of which appears surrounded with long, knotted fringe. The leaves and tendrils resemble those of the common Cucumber; but the fruit is curiously striped, and is so long and narrow as to resemble a snake. Specimens have, indeed, been grown more than six feet long, and not thicker than the body of a common snake. The plant is an annual, a native of China, and is only worth cultivating as an object of curiosity. Many botanists include *Eopepon* under this genus.

Tricho'sma. Hair Orchid. From *thrix, trichos*, hair, and *kosmos*, ornament. Nat. Ord. *Orchidaceæ.*

T. suavis, the only introduced species, is a very scarce and distinct epiphytal Orchid, introduced from Assam in 1840. Its flowers are white, striped with brownish-crimson; very showy and fragrant. It succeeds best when grown in a well-drained pot or pan, and when growing must be kept moderately moist; as it has no pseudo-bulbs, it must never be allowed to get quite dry. Syn. *Cœlogyne coronaria.*

Trichoste'ma. Blue Curls. From *thrix, trichos*, hair, and *stema*, a stamen, referring to the slender, hair-like stamens. Nat. Ord. *Labiatæ.*

A genus of native plants found in sandy fields from New England to Kentucky. They are of no horticultural value.

Tricho'tomous. Branching in threes.

Trico'ryne. From *treis*, three, and *koryne*, a club; in allusion to the form of the capsules. Nat. Ord. *Liliaceæ.*

A small genus of green-house perennials with fibrous roots, natives of Australia. The species are easily increased by division, but are more of botanical than horticultural interest.

Tricuspida'ria. From *tricuspis*, three-pointed; alluding to the petals. Nat. Ord. *Tiliaceæ.*

A small genus of green-house plants, natives of Chili. *T. hexapetala* is a very beautiful, free-flowering shrub, producing pendulous, conical blooms of thick, waxy texture, resembling that of *Lapageria rosea*, and of the same bright, rose color. The leaves are oblong-lanceolate, serrated, or rarely entire. This is the only species yet in cultivation, and is propagated by cuttings of the half-ripened wood. Syn. *Crinodendron Hookerianum.*

Tricuspidatus. Having three points.

Tricy'rtis. Japanese Toad Lily. From *treis*, three, and *kyrtos*, a convex; alluding to the three outer sepals having bags at their base. Nat. Ord. *Liliaceæ.*

T. hirta, the best known species, is a very beautiful, hardy, herbaceous plant, found in China and Japan. The flowers are axillary, in panicles about six inches long, resembling, in their peculiar form and markings, some of the more singular Orchids. This plant is very desirable for the open border. It produces its flowers in October and November, at which time the plant may be removed to the sitting-room, and they will remain several weeks in flower, after which they may again be returned to the border. It was introduced in 1855 and is propagated by division.

Tri'dax. From *treis*, three, and *akis*, a point; alluding to the ray florets.

A genus of *Compositæ*, natives of Central America and comprising seven or more species of hardy perennials of but little beauty. *T. bicolor rosea* is a Mexican half-hardy annual of comparatively late introduction and of easy management. Its flowers are of a pleasing rose color, the disk florets being yellow, and are produced in profusion during the whole season. The typical *T. bicolor* has the ray florets pure white.

Tridentate. Trident pointed; when the point is truncated and has three indentations.

Trienta'lis. Chickweed Winter-green. A Latin term signifying one-third of a foot high, in reference to the stature of the plants. A small genus of *Primulaceæ*, the species of which are found in Europe and in cold, damp woods from New Jersey northwards. They are low, smooth perennials with simple, erect stems, bearing a whorl of thin, veiny leaves at the summit, from which spring one or more slender peduncles supporting the pretty, single, white, star-like flowers.

Trifid. Split half-way into three parts.

Trifoliate. Composed of three leaflets, as the leaves of Clover.

Trifo'lium. Clover, Trefoil. From *treis*, three, and *folium*, a leaf; three-leaved. Nat. Ord. *Leguminosæ.*

Of this very extensive genus there are several species under cultivation as forage plants. They include *T. pratense*, the common Red Clover, a native of Great Britain; *T. reflexum*, Buffalo Clover, indigenous in New York and westward; *T. repens*, White Clover, introduced from Europe, but indigenous in the Northern States; and *T. hybridum*, or Alsike Clover, a hybrid variety introduced from near Stockholm, Sweden. This is a very hardy perennial sort, valuable for pasturage and soiling, and being very productive and floriferous,

bees obtain a large amount of honey from its fragrant flowers. It is valuable for sowing with other grasses and clovers, as it forms a thick bottom, and increases the yield of hay. It is well suited to lands liable to wash, its long, fibrous roots binding the soil well. *T. fragiferum*, the Strawberry Clover, is spoken of as a likely plant with which to make a lawn that will remain green during the summer without irrigation in dry regions like central and southern California. Its stems and branches are prostrate, and spread over the ground. This plant is very tough and hardy, and it produces freely, heads of pale, rose-colored flowers, which resemble ripe strawberries—a resemblance which is the origin of the specific name. A lawn composed of this plant would not require cutting. Besides these there are a number of other species that have been considerably cultivated, but those named are almost wholly preferred for pasture and hay. Those who are accustomed to consider the *Trefoil* as only the common Clover of the meadows, will probably be surprised to learn that there are nearly a hundred and fifty species, all more or less ornamental. Some of these are perennials and some annuals; and the color of their flowers varies from dark crimson, and sometimes scarlet, to purple on the one hand, and to white, cream-color, and pale yellow on the other. Some of our dealers in hardy herbaceous plants have catalogued a few of the more showy species, and highly recommend them for border plants.

Triginous. Having either three pistils or at least three distinct styles.

Trigonal. Three-angled, and having three plain faces.

Trigone'lla. Fenugreek. From *treis*, three, and *gonu*, an angle; the standard of the flower is flat, while the wings spread and give it a triangular appearance. Nat. Ord. *Leguminosæ*.

An extensive genus of herbaceous, leguminous plants inhabiting central Asia, southern Europe and northern Africa. All the species possess a heavy penetrating odor. *T. Fœnum-græcum*, commonly known as Fenugreek, is an erect, annual plant, about two feet high, a native of the Mediterranean region, and considerably cultivated in India and other warm countries, and occasionally in this country. The seeds of Fenugreek were held in high repute among the ancient Egyptians, Greeks and Romans, for medicinal and culinary purposes, but at the present day their use in medicine is confined to veterinary practice, the seeds being given to horses when a temporary stimulant is required or desired. It is said to give cattle and swine good appetites and digestion. The seeds have a powerful odor of *coumarine*, and are largely used for flavoring concentrated cattle foods, and for rendering damaged hay palatable.

Trili'sa. From *trilix*, triple; in allusion to the divisions of the pappus. Nat. Ord. *Compositæ*.

A small genus of hardy, erect, perennial, native plants, with purplish or white flower-heads. *T. odoratissima*, sometimes called the Vanilla Plant, is better known by its old name, *Liatris odoratissima*.

Trillia'ceæ. A natural order now included as a tribe of *Liliaceæ*.

Trilli'um. American Wood Lily. Three-leaved Night-shade, or Wake Robin. From *trilix*, triple; alluding to triple parts of the flowers and leaves. Nat. Ord. *Liliaceæ*.

A singular and beautiful genus of hardy, perennial plants, natives of North America and Asia, from the Himalayas to Japan. *T. grandiflorum*, one of the best of our native spring-flowering plants, is probably the best known species, and deservedly so on account of its large flowers, snow-white when first expanded and changing to rosy-pink with age. *T. ovatum*, a species from the Pacific coast, is as ornamental as *T. grandiflorum*, the flowers being pure white and fully as large. *T. erectum*, having green leaves with dark purple flowers, is common in the Eastern States. *T. sessile* has purple flowers and the foliage prettily marked and blotched. The variety *T. sessile Californicum* is a plant much larger in all its parts, with the marking of the leaves and flowers much brighter in color. This is a very desirable plant and worth cultivating for its foliage alone. They succeed best in a moist, shady situation and good, rich vegetable mould. Several of the species are valuable for pot culture, and when grown in this way may be easily brought into bloom several weeks before their usual flowering period. They are tuberous rooted and do not divide readily, but may be increased rapidly from seed, which should be sown as soon as ripe in a frame, where it may be shaded, or sown in the open ground and slightly covered with leaves.

Trilobed or **Trilobate.** Three-lobed.

Trilocular. Three-celled.

Trime'zia. From *treis*, three, and *merizo*, to divide; in allusion to the division of the flowers. Nat. Ord. *Iridaceæ*.

A small genus of bulbous plants, natives of the West Indies and South America. *T. Martinicensis*, the only species in cultivation, has bright yellow, very fugaceous flowers, and is seldom seen except in botanical collections.

Tricœcius. Having male flowers on one individual, female on another, and hermaphrodite on a third.

Trio'lena. From *treis*, three, and *olene*, the arm; in allusion to the three processes from the base of the anthers. Nat. Ord. *Melastomaceæ*.

A small genus of pilose, perennial herbs, natives of Mexico, Venezuela and New Grenada. *T. scorpioides*, the only introduced species, is very similar to *Bertolonia* in habit, and has curved racemes of pretty, rose-colored flowers. It is propagated by seeds or by cuttings.

Trio'num. Now included under *Hibiscus*.

Trio'steum. Feverwort. Horse Gentian. From *treis*, three, and *osteon*, a bone; three bony seeds. Nat. Ord. *Caprifoliaceæ*.

A genus of coarse-growing, hardy, herbaceous plants, common in the Middle and Southern States. The roots of one of the species was esteemed by the Indians as a medicine. They are of no horticultural value.

Tripartite. Divided into three parts nearly to its base.

Tripetalous. When a corolla consists of three petals.

Tripha'sia. From *triphasios*, triple; alluding to the number of sepals and petals. Nat. Ord. *Rutaceæ*.

T. trifoliata, the only species, is a spiny, evergreen shrub, a native of southern China, but now naturalized in many parts of the East Indies and also cultivated in the West Indies. Its fruits, which are as large as hazel-nuts, have an agreeable, sweet taste when ripe, and are sometimes preserved whole in syrup and exported under the name of Lime-berries. It is under cultivation, and may be propagated by cuttings.

Tripinnate. When the leaflets of a bi-pinnate leaf become themselves pinnate.

Tri'psacum. From *tribo*, to thresh; in allusion to the purpose to which its grain may be applied. Nat. Ord. *Graminaceæ*.

A small genus of grasses confined to the Southern States and to South America. *T. dactyloides*, commonly called Gama-Grass and Buffalo Grass, is common from Connecticut to Illinois and southward. This is one of the largest and most remarkable grasses, growing from four to seven feet high, with leaves like those of Indian Corn; in the absence of a better, this grass is sometimes used at the South for fodder. This species is also grown among ornamental grasses.

Trise'tum. From *treis*, three, and *seta*, a bristle, on account of the three awns of the flower. Nat. Ord. *Graminaceæ*.

An extensive genus of annual and perennial grasses, nearly allied to the oat-grass, widely distributed over the different quarters of the globe. They are chiefly natives of the temperate zones, where some of them are useful pasture grasses. *T. flavescens* and *T. pubescens*, natives of Great Britain, are considered valuable for agricultural purposes; the former generally forms a portion of all productive meadows.

Trista'nia. Named in honor of *J. M. C. Tristan*, a French botanist. Nat. Ord. *Myrtaceæ*.

A genus of green-house shrubs, mostly natives of Australia. They are very pretty plants, thriving well in a compost of loam and sandy peat. *T. conferta*, the Australian Turpentine-tree, and *T. neriifolia*, the Water Gum-tree, are both in cultivation and are increased by cuttings of the half-ripened wood.

Tristichous. In three rows or ranks.

Tritelei'a. From *treis*, three, and *teleios*, complete; the parts of the flower and fruit are in threes. Nat. Ord. *Liliaceæ*.

A small family of very pretty bulbs, natives of California and South America, often confounded with *Milla*. *T. uniflora*, or Spring Star Flower, is a delicately colored, free-flowering, hardy plant, four to six inches high. The flowers are clear white with a grayish-violet stripe on each division of the corolla. They open with the morning sun, are conspicuously beautiful on bright days, and close in dull, sunless weather. It comes into flower with or before *Scilla Sibirica*, and is still in effective bloom when the vivid blue of the Squill has been long replaced by green leaves. *T. laxa*, the Californian species, has glaucous leaves, and a many-flowered umbel of deep blue flowers. All the species are desirable, and suited either to green-house culture or

the open border. They were first introduced in 1832, and are propagated by offsets.

Tri'ticum. Wheat. From *tritum*, rubbed; in allusion to its being originally rubbed down to make it eatable. Nat. Ord. *Graminaceæ*.

This genus includes annual and perennial grasses, some of which are the most useful and important plants in cultivation, while others are the most troublesome pests the farmer and gardener have to contend against. *T. vulgare*, Wheat, has more intrinsic value than any other plant grown. The native country of the Wheat is unknown; in its present form it is older than history. There is no record of it having been found growing *wild*. Those who have given the most time and study to ascertain its origin, *presume* it is a native of southern Europe and Western Asia, a development of the genus *Ægilops*. This is, however, mere speculation. Many varieties of Wheat have been produced by culture and cross-breeding, without, however, materially changing the grain. *T. repens* is the pest commonly known as Couch or Quick Grass, a perennial that is most tenacious of life, and which, when once established, will destroy all other crops, and can be exterminated only with the greatest exertion and difficulty.

Tri'toma. From *treis*, three, and *temno*, to cut; in allusion to the three sharp edges at the ends of the leaves. Nat. Ord. *Liliaceæ*.

The *Tritoma*, or Red-hot Poker plant, and also Flame Flower, as it is popularly known, is a very beautiful, half-hardy, herbaceous plant, native of the south of Africa. The genus consists of about half a dozen species, the finest being *T. Uvaria grandiflora*, a plant admirably adapted for single clumps on the lawn, or among shrubbery, where its tall spikes of orange-red flowers make an effective display from August until December. This plant will usually live through the winter in the latitude of New York without protection, if planted in a dry soil; but it will well repay the slight protection required of three or four inches of dry leaves around the stem to secure it against all danger from frost. The flowers are not at all injured by a few degrees of frost, and it is not an uncommon sight to see its tall spikes in perfect flower in December. They are readily increased by seed or by division of the roots, which should be done in early spring. This genus was first introduced in 1707, and is now placed under *Kniphofia* by many botanists, but it is best known in cultivation as *Tritoma*.

Trito'nia. From *triton*, a weathercock, in allusion to the variable direction of the stamens in the various species. Nat. Ord. *Iridaceæ*.

A very pretty genus of low-growing, bulbous plants, from the Cape of Good Hope. The flowers are tubular, borne on slender scapes, the colors being orange, white, yellow and blue. They are half-hardy and should have the protection of a frame during winter, and may be allowed to remain undisturbed for a number of years. *T. aurea*, now called *Crocosma aurea*, bearing beautiful orange-colored flowers, is one of the best, and is much esteemed. They were first introduced in 1815, and are increased by offsets.

TRI

Tri'xis. From *trixos*, triple; alluding to the three-celled, triangular capsule. Nat. Ord. *Compositæ.*

A genus of green-house plants of variable habit, natives of Central and South America and the West Indies. *T. divaricata auriculata* and *T. senecioides* are interesting plants with white or yellowish-white flowers and may be increased by cuttings or by seeds.

Tro'llius. Globe Flower. From *trol*, the German for round; the flowers are globular. Nat. Ord. *Ranunculaceæ.*

A genus of hardy, yellow-flowered, herbaceous plants. *T. laxus*, the only native species, has flowers twice the size of the Buttercup, of a pale greenish-yellow color. *T. Europæus*, a native of Great Britain, has much larger flowers, and of a brighter color, and, with *T. Asiaticus*, is an excellent plant for the herbaceous border or rock garden. They are generally increased by division or by seeds, which, however, rarely vegetate the first year, but come up vigorously the following spring.

Tropæola'ceæ. A genus now included as a sub-order of *Geraniaceæ.*

Tropæo'lum. Nasturtium, Indian Cress. From *tropaion*, a trophy; the leaves resemble a buckler, and the flowers an empty helmet. Nat. Ord. *Geraniaceæ.*

An extensive genus of hardy annuals and green-house tuberous and herbaceous perennials, all natives of tropical America. The tuberous-rooted varieties are confined to Peru. The well-known annual plants, called Nasturtiums, are common in every garden, and only require sowing with the other hardy annuals in spring. There were formerly only two kinds of the annual Tropæolums, *T. major* and *T. minor*, but since 1830 numerous varieties have been raised. One, with very dark flowers, is called *T. minor atrosanguineum*, and another, with dark stripes, is *T. minor venustum.* The tall-growing varieties are not easily surpassed for covering arbors or unsightly objects; while the dwarf sorts are beautiful plants for the mixed flower border or for placing in beds by themselves; they are exceedingly compact and floriferous. As the double varieties do not seed they must be increased by cuttings, which root readily in sand. The young shoots of these plants are succulent, and taste like the common land Cress, the botanical name of which is Nasturtium, and hence they have received their popular name. Besides the hardy annual kinds, there are several tender species, most of which are kept in the green-house. The best known of these is *Tropæolum tricolorum*, with flowers marked red, black and yellow, which has tuberous roots, and such very weak and slender stems that it is found necessary always to train them over a frame or trellis, as they are quite unable to support themselves. In Paxton's "Magazine of Botany" it is stated that the tuber of the root should not be buried, but only placed on the surface of the soil, so that the fibrous roots may penetrate it. This, it is said, will enlarge the size of the tuber in "a truly astonishing manner;" and though the plants will not appear healthy the first season, they will afterward become extremely vigorous. It is also recommended to use double pots for these plants, and fill up the interstices with river sand, which should always be kept moist.

TSU

Substantially the same plan has been followed in this country for many years and found to succeed well. *T. brachyceras* may be treated in the same manner, and it would probably succeed with *T. tuberosum*, a species which it is very difficult to throw into flower under ordinary treatment, but which grows best in the open ground, in rich soil, and with plenty of air and light. *T. peregrinum*, the Canary Bird Flower, was formerly considered a green-house plant, but it is now found much better to treat it as a half-hardy annual, raising the seeds on a hot-bed, and planting them out in May near some trellis-work or other support, which the plant will soon cover in the most graceful manner, producing hundreds of its elegant fringe-like, pale-yellow flowers. Propagated by cuttings and by seeds. First introduced in 1596.

True Love. A local name for *Paris quadrifolia.*

Truffle. *Tuber cibarium.* A species of Fungus found in various parts of Europe and much esteemed as a rare dish. It grows under the ground and was formerly sought after with dogs trained for the purpose, but is now usually discovered by a particular species of fly hovering over the place of its growth. It is said that the Truffle has been found in the State of New York.

Trumpet Creeper. See *Tecoma radicans.*

Trumpet Flower. A common name for various large, trumpet-shaped flowers, as *Datura*, *Brugmansia*, etc.

Trumpet Honeysuckle. A common name for *Lonicera sempervirens.*

Trumpet Leaf. The genus *Sarracenia.*

Trumpet Lily. *Lilium longiflorum*, also *Richardia Æthiopica.*

Trumpet Weed. *Eupatorium purpureum.*

Trumpets. *Sarracenia flava.*

Truncate. Blunt, as if cut off at the end; as the leaf of the Tulip tree.

Tryma'lium. From *trymalia*, a perforation; in reference to the small holes at the top of the capsule. Nat. Ord. *Rhamnaceæ.*

A small genus of Australian green-house shrubs with the habit of *Pomaderris*, but with smaller flowers. *T. odoratissimum* is well deserving a place in every collection of green-house plants on account of its snow-white flowers, which being produced in numerous, loose, drooping panicles, render it a very beautiful object when in blossom; its flowers are also deliciously fragrant. It thrives in a compost of sandy loam and leaf-mould, and is increased by cuttings.

Tsu'ga. The Japanese name for these trees. Nat. Ord. *Coniferæ.*

Of the eight species that compose this genus, two belong to eastern Asia, one to eastern and five to western North America. All the species are closely allied, and were formerly included under *Abies.* *T. Canadensis*, known better in cultivation as *Abies Canadensis*, is the well-known Hemlock Spruce, one of the most beautiful and useful of our native evergreens. *T. Pattoniana* is found in the highest timber regions of the Sierra Nevada, where it forms a large tree. In a young state it has the aspect of a Juniper, the leaves

being linear and pointed. It is very hardy, and forms a beautiful, erect, densely branched tree.

Tubæform. Hollow, and dilated at one extremity like the end of a trumpet.

Tube. The part of a mono-sepalous calyx or corolla, formed by the union of the edges of the sepals or petals; also applied to adhesions of stamens.

Tuber. See Truffle (*Tuber cibarium*).

Tuber. A roundish, underground, succulent stem, covered with buds, from which new plants or tubers are produced, as the Potato; a receptacle of vegetable food.

Tubercle. Any small, warty excrescence.

Tuberose. See *Polianthes tuberosa*.

Tulba'ghia. In honor of *Tulbagh*, a Dutch governor of the Cape of Good Hope. Nat. Ord. *Liliaceæ*.

A small genus of evergreen perennials, natives of the Cape of Good Hope. *T. violacea* is a very beautiful plant. The flowers are violet-purple, produced in a many-flowered umbel, somewhat like those of the *Agapanthus*, to which the genus is allied. Propagated by division.

Tulip. See *Tulipa*.

Tu'lipa. The Tulip. Nat. Ord. *Liliaceæ*.

The Tulip derives its name from the Persian word *Thoulyban*, a turban; an Eastern headdress, sometimes made in the form of a well-shaped Tulip. Tulips are divided into several classes, and of these we shall speak in the order of their flowering. The single and double varieties of the *Duc Van Thol*, of which the type is *Tulipa suaveolens* (from the Latin *suavis*, sweet), are the earliest and most suitable for pot culture or forcing. If, in autumn, they are planted singly, in small pots of light, rich soil, they will flower extremely well in an ordinary room, and contrast finely with Hyacinths in glasses. They should be frequently exposed to fresh air, and will flower in water like the Hyacinth, but with less certainty and less luxuriance; hence they are better grown in pots of soil. The *Duc Van Thol* was introduced into English gardens from the south of Europe in 1603. The Single Early Tulip (*Tulipa Gesneriana*), the parent of our ordinary garden varieties, is a native of Asia Minor, the Caucasus, Calabria and central Italy. Conrad Gesner, a Swiss naturalist, in whose honor it was named, first made it known by a description and drawing in April, 1559. He obtained his specimen in a garden at Augsburg, where it was grown from seed brought from Constantinople. It was first flowered in England by Mr. James Garret, an apothecary, in 1577. *T. Turkestanica* is, perhaps, the earliest-flowering species of this numerous family, coming in with the earliest of spring-flowering bulbs. It is perfectly hardy and has pretty, yellow flowers, which are produced as many as six on a stem. This plant, as the specific name implies, is a native of Turkestan. We are indebted to Dr. Regel, of St. Petersburg, for the introduction of this and many other interesting plants. Of this class of Early Single Tulips there is almost an endless variety. They have received, for more than two hundred years, all the care and attention that could possibly be bestowed on a plant, not only by the Dutch florists, but by every skilled gardener throughout the Old World. Notwithstanding the "mania" has passed over, one of the Haarlem florists this season (1889) offers eighteen hundred varieties. To select from a list so large with a view of pleasing or of securing the most desirable, would be to play a game of chance. Every color and shade, except black, is represented, either alone or mixed, striped, or shaded; in fact, every possible combination of color may be obtained. Double Tulips are almost as common as the single, many of them very showy and desirable. But, like all others who have made a specialty of the Tulip, we could never admire the double as much as the single varieties. Late flowering or Show Tulips, of which so much has been said and written, have been grown from seed by millions, the result of which has been the acquisition of many superb varieties. There is a singularity in Tulips which belongs to no other flower. The seedlings generally, when they first bloom, produce flowers without any stripes or markings, but with a yellow base, the upright portion of the petals being self-colored, brown, red, purple, scarlet or rose. In this state, when they have been grown for years without variation, they are called Breeders or Mother Tulips. These are planted every year until they break into stripes, when, if the markings are fine, or different from any known, they are named. It is often so many years before they break, and the multiplication in the breeder state is so rapid, that the border soon becomes filled with this self-colored variety. Each person who has broken one claims, and has a perfect right, to give it a name; but much confusion naturally exists, because of the fact that different names have been given to those that have broken almost exactly alike. In a bed of a hundred seedlings, it is not probable that any two will be very nearly alike in their markings. This uncertainty adds greatly to the charm of Tulip cultivation. The hope of something new in the markings and penciling is a sufficient stimulant for the enthusiast to persevere in his labor of love until he has found *one* worthy of a name. One singular feature in the Tulip is, that after it breaks, it ever remains the same. Show Tulips are divided into three classes: 1. *Byblœmens*, such as have a white ground, variegated with purple, the edges well feathered, the leaflets erect, and the whole forming a perfect cup. 2. *Bizarres*, having a yellow ground, variegated with scarlet, purple, rose or violet. 3. *Roses*, with white ground, variegated with rose-color, scarlet or crimson. The properties of a good Tulip, as a florist's flower, are: 1. The cup should form, when quite expanded, from half to a third of a round ball. To do this, the petals must be six in number, broad at the ends, smooth at the edges, and the divisions between the petals must scarcely show an indenture. 2. The three inner petals should set closely to the three outer ones, and the whole should be broad enough to allow of the fullest expansion without quartering, as it is called, or exhibiting any vacancy between the petals. 3. The petals should be thick, smooth and stiff, and keep their form well. 4. The ground should be clear and distinct, whether white or yellow. The least stain, even at the lower end of the petal, renders a

Tulip of less value. 5. Whatever be the disposition of colors or marks upon a Tulip, all the six petals should be marked alike, and be, therefore, perfectly uniform. 6. The feathered flowers should have an even, close feathering all round; and whether narrow or wide, light or heavy, should reach far enough round the petals to form, when expanded, an unbroken edging. 7. If the flower have any marking besides the feathering at the edge, it should be a bold mark down the centre, but not reaching the bottom of the cup. The mark must be similar in all the six petals. 8. Flowers not feathered, and with the flame only, must have no marks on the edges of the flowers. None of the colors must break through to the edge. The color may be disposed in any form, so that it be perfectly uniform in all the petals, and does not go too near the bottom. 9. The color, whatever it may be, must be dense and decided. Whether it be delicate and light, or bright, or dark, it must be distinct in its outline, and not shaded, or flushed, or broken. 10. The height should be eighteen to thirty-six inches; the former is right for the outside row in a bed, and the latter is right for the highest row. 11. The purity of the white and the brightness of the yellow should be permanent; that is to say, should stand until the petals actually fall. Where Parrot Tulips originated we have not learned. They are ignored by those florists who claim the right to say what is and what is not beautiful. Not being bound to observe the "laws" that regulate the form, shape, and "perfect markings," we prize this class very highly, on account of their singularly picturesque appearance. The flowers are very large and the colors exceedingly brilliant. They are unequaled for groups in mixed borders, or conspicuous places in front of shrubs. The varieties of this class are limited, but they are, nevertheless, particularly beautiful.

Culture of the Tulip. The best soil for the cultivation of the Tulip is a rich, rather light, well-drained loam. A bed of sufficient size for planting the bulbs should be dug at least twelve inches deep. The Tulips should then be planted six inches apart each way; pressed deep enough to keep them in their places, and covered with mould to the depth of three inches on the sides of the bed, and five inches in the centre. This precaution is necessary, that water may not stand on the bed during the winter. When the bed is planted and covered it may be left to the weather until the Tulips come up, or about the 1st of March. Beds of Tulips show up to much better advantage if they are carpeted with small, creeping or tufted plants, and there are many hardy, flowering and foliage plants suited for the purpose. The White Rock Cress (*Arabis albida*), and its variegated form, *Hepaticas*, *Silene pendula*, the Ground Ivy (*Glechoma hederacea*) and its variegated form, *Lamiums*, *Sedum acre aureum* the early flowering *Violas*, *Ajuga reptans rubra*, *Aubretias*, and many others, make excellent carpets for beds of bulbs. When the flowers appear, if they are protected from the sun by a light canvas, the period of bloom may be kept up for three or four weeks. The colors are generally better if not shaded at all, but in that case the bloom would be soon over. Sometimes a single day's hot sun would completely spoil them. When the flowers begin to fade, they should be cut away and removed from the bed. As soon as the stems of the Tulip turn yellow, and the leaves begin to dry, they may be taken up and put in a cool, dry place. When dry, thoroughly clean off the old skin and dirt, and put in paper bags, ready for planting out again in October. Some of the double varieties are very showy and beautiful, and as they are later in flowering than the single sorts they are desirable to lengthen the season of flowering. The Tulip is also now extensively forced for cut flowers during the winter and spring months. The method of culture is identical with that of the Roman Hyacinth and Paper Narcissus. The kinds known as "Single Early" are the best for this purpose. The following are a few of the most desirable sorts: Belle Alliance (Waterloo), scarlet; Artus, scarlet; Chrysolora, large bright yellow; Duc Van Thol, various colors; Duchesse de Parma, red with yellow band; Keizerkroon, scarlet and yellow; Queen Victoria (La Reine), white; Rosa Mundi, rose and white; Rose Grisdelin, delicate rose; Vermilion Brilliant, dazzling vermilion; Yellow Prince, etc.

Tulip. African. A name given to the genus *Hæmanthus*.

Tulip Tree. See *Liriodendron*.

Tulip Tree or **Fire Tree**, of Queensland. See *Stenocarpus*.

Tulip. Wild, of California. The genus *Calochortus*.

Tulip Wood Tree. The striped, rose-colored wood of *Physocalymna floribunda*.

Tulip Wood Tree. Australian. *Cupania* (*Harpalia*) *pendula*.

Tu'nica. From *tunica*, a coat; referring to the calyx. Nat. Ord. *Caryophyllaceæ*.

Hardy annuals and herbaceous perennials, natives of southern Europe and Central Asia, and allied to *Dianthus*. A few of the species have showy flowers in spring. They are increased by division or from seed.

Tunicate. Coated; invested with layers, as an Onion.

Tu'pa. *Tupa* is the name of *T. Feuillei* in Chili. Nat. Ord. *Lobeliaceæ*.

This is a genus of pretty plants, chiefly natives of Chili and Peru. They are worth cultivating on account of the beauty and singularity of their flowers. They are treated and propagated like the *Lobelia*.

Tupelo Tree. See *Nyssa*.

Tupida'nthus. From *tupis*, *tupidos*, a mallet, and *anthus*, a flower; referring to the shape of the flower-buds. Nat. Ord. *Araliaceæ*.

T. calyptratus, the only introduced species, is at first a small, glabrous, erect tree, afterwards a lofty climber. It was introduced from India in 1855, and is increased by cuttings.

Tupi'stra. Mallet Flower. From *tupis*, a mallet; alluding to the peculiar form of the stigma. Nat. Ord. *Liliaceæ*.

A small genus of stove-house plants, natives of the Himalayas. Two species are in cultivation, but are grown more for their interesting flowers than for their beauty.

Turbinate. Top-shaped.

Turgid. Swollen, puffed up.

Turio. A scaly sucker, which afterwards becomes a stem, as in Asparagus.

Turkey Corn. A common name for *Dicentra formosa.*

Turkey Oak. *Quercus Cerris.*

Turkey's Beard. See *Xerophyllum.*

Turkish Rhubarb. See *Rheum palmatum.*

Turk's Cap. *Melocactus communis.*

Turmeric. See *Curcuma.*

Turmeric-Root. A common name for *Hydrastis Canadensis.*

Tu'rnera. Dedicated by Linnæus to the memory of *William Turner*, author of "A New Herbal," 1551. Nat. Ord. *Turneraceæ.*

A genus of very handsome plants when in flower. Some are annuals, and others greenhouse shrubs and herbaceous plants, with yellow flowers, some of which resemble those of the *Thunbergia.* They should be grown in a light, rich soil. They are propagated by cuttings or by seeds. Introduced from South America in 1774.

Turnera'ceæ. A small, natural order, consisting of herbs or under-shrubs, natives chiefly of tropical Africa and America, with alternate leaves and yellowish or blue axillary flowers. The order embraces three genera and nearly eighty species.

Turnip. (See *Brassica.*) The field and garden Turnip is supposed to have originated by long cultivation of the wild *Brassica rapa*, a native of Great Britain and other parts of Europe. At what period it was first brought into notice in its native countries, or how its improvement from its native wild and useless state was brought about, is entirely unknown. It was in use as a vegetable before the Christian era, but we have no account of its being cultivated to any extent as a field crop previous to 1600. It does not seem that there was any rapid development in its improvement worthy of mention by the early writers previous to 1650, but from that period its increase in cultivation was rapid, and many new sorts are mentioned. At the present day, every country adapted to its growth boasts of the varieties it has produced. The Swedish Turnip, or Ruta Baga, one of the best known, originated from *B. campestris;* its varieties are numerous, and generally cultivated. The French Turnip is considered sweeter and freer from any acrid properties than most others, and is highly prized for the table. Several varieties are designated as American, and the Purple and White Strap-leafed Turnips justly so, but where or by whom they originated, or the parentage, we are without knowledge. We only know that they were long grown here previous to their being known in Europe, and that they have always been regarded as American varieties there. A variety known as the White Egg, evidently a selection from the Long White or Cow-horn Turnip, is one of the best for the table. The Turnip is used both as a spring and fall crop. For spring, sow as early as the ground is dry enough, and for fall, in the latitude of New York, sow Ruta Bagas in July, and other varieties during the latter part of August and in September, according to the kind. Seeds may be sown as the ground becomes vacant. In every case, when the soil is dry, firm the seeds well in the soil by the feet or by rolling.

Turnip. Devil's. A common name for *Bryonia dioica.*

Turnip. Indian. A common name for *Arisæma triphylla*, which see.

Turnip. Lion's. The roots of *Leontice Leontopetalum.*

Turnip-rooted Celery. Celeriac. See Celery.

Turnip. St. Anthony's. A common name for *Ranunculus bulbosus.*

Turnsole. *Croton tinctorium*, also the genus *Heliotrope.*

Turpentine Tree. A common name for various species of *Abies, Pinus, Pistacia, Bursera*, etc.

Tu'rræa. Named in honor of *George Turra*, once Professor of Botany at Padua, and author of several botanical works. Nat. Ord. *Meliaceæ.*

A genus of tropical shrubs and large trees confined to the Old World. Some of the species have edible fruit, and a few are grown for the beauty of their flowers.

Tu'rritis. A genus of *Cruciferæ* now included under *Arabis.*

Turtle-Head. One of the popular names for *Chelone*, which see.

Tussa'cia. Named after *F. R. de Tussac*, a French botanist, who wrote a "Flora of the Antilles" in 1808. Nat. Ord. *Gesneraceæ.*

A small genus of plant-stove herbs with creeping, branched rhizomes, natives of the West Indies, Guiana, etc. The flowers are yellow, lined with purple and the calyx scarlet, forming a very showy, terminal corymb of flowers. They require the same culture as the *Gesnera*, to which they are closely allied.

Tu'ssilago. Colt's Foot. From *tussis*, a cough; for curing which the flowers have been employed. Nat. Ord. *Compositæ.*

Hardy and half-hardy perennials, natives of central Europe. One of the species, *T. Farfara*, is common in wet places in the Middle and New England States, having become thoroughly naturalized. The variegated variety, the leaves margined with creamy-white, is a very ornamental plant, and can be used with good effect in shady positions, where other plants will not thrive. It does well as an edging to clumps of Ferns, or as a ground-work to other plants with graceful foliage. *T. fragrans* is named the Winter Heliotrope on account of the delicious fragrance of its purplish flowers in early spring; a waste corner cannot be better occupied than by this sweet flower. They are of easy cultivation and are propagated by division of the roots, which are inclined to increase rapidly.

Tutsan. A common name for *Hypericum Androsæmum.*

Twayblade. See *Listera.*

Twig Rush. The popular name for the common bog or marsh plant, *Cladium mariscoides.*

Twin Flower. A name applied to *Linnæa borealis*, which see.

Twin Flower. Scarlet. *Bravoa geminiflora.*

Twin Leaf. The local name of the genus *Jeffersonia*, which see. The plant is also sometimes called *Rheumatism Root.*

Tydæ'a. Derivation not given. Nat. Ord. *Gesneraceæ.*

A genus of beautiful herbaceous plants, natives of the mountains of New Grenada. There are at present only four described species, which are better known under their old name of *Achimenes*, the best known being *T. picta.* "They are erect, robust herbs, with fine blotched leaves and axillary, bright-colored flowers. The calyx is connate with the ovary, the corolla almost funnel-shaped, and five-lobed; the stamens are included, the ovary surrounded by five glands, the stigma five-cleft and the fruit a capsule." The *Gesneraceæ* have been much cut up and divided of late years, so that one hardly knows where to look for the plant he wants to find. See *Achimenes* and *Gesnera.*

Ty'pha. Cat-Tail Flag. From *typhos*, a marsh; referring to the habitat of the species. Nat. Ord. *Typhaceæ.*

T. latifolia, the common Cat-Tail Flag of our marshes, a native of Europe and the East, has become naturalized in almost all parts of the United States. It is also common in Europe. A species with narrow leaves is more rare. The pollen of *Typha* is inflammable, like that of *Lycopodium*, and is used as a substitute for it. The "Cat-Tail," in the minds of most boys, is closely associated with the "Fourth of July," being largely used by them for "setting off" their fireworks and crackers.

Typha'ceæ. A small natural order of reed-like plants, growing in marshes, ditches, or shallow water, with long, narrow, parallel-veined leaves, and small flowers densely packed in cylindrical spikes or heads. There are very few species, but some of them are dispersed over nearly all parts of the world. They form two genera, *Typha* and *Sparganium.*

Typho'nium. From *Typhon*, a mythological giant. Nat. Ord. *Aroideæ.*

A genus of tuberous, perennial herbs, differing slightly botanically from *Arum*, natives of tropical Asia, the Pacific Islands and Australia. The species have large, showy leaves, and require the same general treatment as *Colocasia.*

Tyto'nia. Water Balsam. Named after *Arthur Tyton*, by whom many of the oldest inhabitants of our gardens were preserved. Nat. Ord. *Geraniaceæ.*

T. natans, the only species, is a stove aquatic, its large irregular flowers beautifully variegated with white, red and yellow. It should be grown in rich, loamy soil, in large pots or pans of water, in a warm part of the green-house. It is a native of tropical Asia, introduced in 1810, and can be increased by seeds sown in spring. Syn. *Hydrocera triflora.*

U.

Ugni. A genus founded on a single Chilian species which was at first referred to *Eugenia*, but is now generally placed under *Myrtus. M. Ugni* has very agreeably flavored aromatic fruit, and succeeds admirably in the Southern States. See *Myrtus.*

U'hdea. *U. bipinnatifida* is a stout-habited Mexican composite plant, valuable for summer decoration. It is of robust growth, attaining a height of from four to six feet in deep, rich soils. The branching stems are clothed with slightly silvery or glaucous, irregular and deeply cut foliage. In sheltered positions on the lawn it forms noble, isolated specimens, or it may be judiciously grouped along with dark-leaved *Ricinus* or *Cannas. U. pyramidata* is of a lighter and fresher green than the preceding, and is larger in habit, having more of the aspect of *Malva* in foliage. They are both readily propagated from cuttings, which are freely produced by old specimens taken up carefully in autumn and re-potted.

U'lex. Furze. Gorse or Whin. Said to be taken from the Celtic *ac*, a point; in allusion to its prickly branches. Nat. Ord. *Leguminosæ.*

A genus of very beautiful, evergreen shrubs, with yellow flowers, both double and single, indigenous to Great Britain and the south of Europe. They are highly esteemed for hedge plants, and the young tops are cut and fed to cattle and horses; but their value as a food plant is considerably questioned. None of the species thrives in this country, being too tender for our Northern States, and too impatient of our tropical summers in the South.

Uliginose. Inhabiting swampy places.

U'llucus. From *Ulluco*, the Quitan name. Nat. Ord. *Chenopodiaceæ.*

U. tuberosa, the only species, is a half-hardy, fleshy, decumbent herb, with a stem throwing out thread-like branches, which, when they enter the earth, produce edible tubers. The plant is extensively cultivated for these tubers in the mountains of Bolivia and Peru, under the name of Oca-quina. It is interesting, as having been unsuccessfully tried as a substitute for the Potato. Syn. *Melloca.*

Ulma'ceæ. Now included as a sub-tribe of *Urticaceæ.*

U'lmus. Elm. Supposed to be from the Saxon word *elm* or *ulm*, a name which is applied, with very slight alterations, to the trees of this genus in all dialects of the Celtic tongue. Nat. Ord. *Urticaceæ.*

This genus takes the first rank in the great army of American trees. When asked, "What is the handsomest tree in America?" we unhesitatingly say, "*U. Americana*, the American Water or White Elm." Of the several species that make up this genus, none in any respect compares with this. *U. fulva* is the common Red or Slippery Elm. *U. racemosa*

TULIP (DOUBLE SCARLET TOURNESOL).

TULIPA GREIGI.

TULIPS (VARIETIES OF).

TULIPA GESNERIANA (SINGLE TULIP).

TULIP (PARROT).

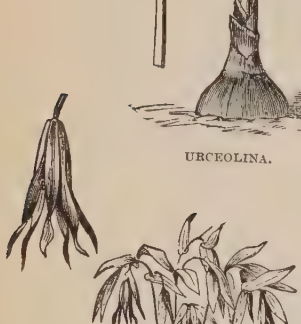
URTICA NIVEA.

TYDÆA.

URCEOLINA.

UHDEA BIPINNATA.

VALERIANA.



UVULARIA GRANDIFLORA.

UNIOLA.

VERBENA (TYPES OF).

is the Cork, Hickory or Cliff Elm. *U. alata* is the Winged Elm or Whahoo of the South and West. The celebrated English Elm is *U. campestris*. All the species are propagated from seeds.

Umbel. An inflorescence in which the stalks radiate from a common point and form a flat or convex surface above, as in the Carrot. It is simple or compound.

Umbellate. Disposed in or resembling the umbels.

Umbelli'feræ. One of the most natural and, consequently, most easily recognized orders of plants, but one of the most difficult to divide into well-defined genera. It consists of herbs, often strongly scented, with small flowers, usually in a simple or compound umbel which has given the name to the order. They inhabit, for the most part, woods, bogs, marshes and dry places, principally in the northern parts of the northern hemisphere. As the equator is approached they become less known, and in the southern hemisphere they are comparatively rare. Though mostly herbs, these plants sometimes attain a gigantic size, as in some species of *Heracleum* and *Angelica*. Dr. Welwitsch, moreover, mentions having found in tropical Africa, in the region of the Golungo Alto, an arboreous umbellifer with a stem one foot and a half in diameter, which is prized highly by the natives for its medicinal properties and for its value as a timber tree. This, so far as at present known, is the most gigantic plant of the order. The *Umbelliferæ* number at least fifteen hundred species, divided amongst nearly three hundred genera, many of which are important as producing articles of food; many are poisonous; most are merely unimportant weeds; a few, like *Astrantia*, are furnished with gay colors, and thus become objects of decoration. One of them, *Bolax Glebaria*, forms huge tussocks in the Falkland Islands, resembling hay-cocks. Of the harmless species, in which, with a little aroma, there is no inconsiderable quantity of acrid watery matter or gum-resinous secretion, must be more particularly named Celery, Fennel, Samphire, Parsley, and the roots of the Carrot, Parsnip and Skirret (*Sium Sisarum*). The roots of *Eryngium campestre* and *E. maritimum*, commonly called Eryngo, are sweet, aromatic and tonic. The aromatic roots of *Meum athamanticum* and *M. Mutellina* form an ingredient in Venice treacle. Angelica Root (*Archangelica officinalis*), is fragrant, sweet when first tasted, but leaving a glowing heat in the mouth. Others are gum-resinous, as the species of *Ferula* and *Narthex*, yielding Asafœtida, the fetid odor of which is supposed to be owing to sulphur in combination with a peculiar essential oil.

Of aromatic and carminative fruits, the most celebrated are Anise (*Pimpinella Anisum*), Dill (*Anethum graveolens*), Caraway (*Carum Carui*) and Coriander (*Coriandrum sativum*). Besides these, great numbers of less note are also employed for the same reason, the chief of which are the Ajwains or Ajowains of India (species of *Ptychotis*), Honeywort (*Sison Amomum*), whose fruits smell of bugs, and Cummin (*Cuminum Cyminum*), now only used in veterinary practice. Among poisons, Hemlock (*Conium maculatum*) holds the first place. *Anthriscus vulgaris* and *A. sylvestris* are not so dangerous. *Æthusa Cynapium*, *Œnanthe crocata*, *Œ. phellandrium*, *Cicuta maculata* and *C. virosa* are other poisonous species.

Umbellula'ria Californica. A name given to *Ocotea* or *Oreodaphne Californica*, the Californian Sassafras.

Umbi'licus. From *umbilicus*, the navel; in allusion to the concave leaves of some of the species. Nat. Ord. *Crassulaceæ*.

A genus of interesting plants, natives of southern Europe, the Levant and tropical Africa, and now usually placed under *Cotyledon*. In some of the species the radical leaves are rosulate, or disposed like the petals in the flower of a double Rose; others have them alternate on the stalk; in all they are fleshy. The flowers, which are either white or yellow, grow in branched or simple racemes. They grow naturally in dry, stony places, are at home in a rock-work, and are often used for carpet bedding and edging. They grow well in pots, and require the same treatment as *Echeverias* and *Sempervivums*. Introduced in 1732.

Umbraculiform. Umbrella-shaped.

Umbrella China Tree. A variety of *Melia Azedarach*, which see.

Umbrella Grass. The common name of *Fuirena squarrosa*. It is common in sandy, wet places from Massachusetts southward.

Umbrella Palm. See *Kentia*.

Umbrella Pine or Parasol Fir. See *Sciadopitys*.

Umbrella Tree. *Magnolia Umbrella* and *M. tripetala*, also *Thespesia populnea* and *Pandanus odoratissimus*.

Umbrosus. Growing in shady places.

Unarmed. Destitute of spines or prickles; pointless.

Unca'ria. From *uncus*, a hook; the old petioles are converted into hooked spines. Nat. Ord. *Rubiaceæ*.

A genus of about thirty species of climbing, shrubby plants, natives of the tropics. The most interesting species, *U. Gambier*, from which the Gambier of commerce is obtained, is a native of India and was introduced in 1825.

Uncinate. Bent or curved at the tip, like a hook.

Undershrub. A small, woody plant, the ends of its branches perishing annually.

Undulate. Wavy or wavy-margined.

Unguiculate. Furnished with a claw (*unguis*); that is, a narrow base; as the petals of a Rose, where the claw is very short, and those of Pinks, where the claw is very long.

Uni. In compound words, one, as *Unifoliate*, *Uniflorus*, etc.

Unicorn Plant. A common name for *Martynia lutea* and *M. proboscidea*.

Unicorn Root. Unicorn's Horn. The root of *Helonias dioica*, a native of New Jersey, Pennsylvania, Virginia, etc.; used as an anthelmintic.

Uniflorus. Supporting a single flower.

Unifoliate. When a compound leaf consists of one leaflet only, as in the Orange-tree.

Unilocular. One-celled.

UNI

Uni'ola. Sea-side Oat. From *unus*, one; so called by Linnæus, owing to the union of the glumes. Nat. Ord. *Graminaceæ*.

A genus of grasses, natives principally of the Southern States. *U. paniculata* and *U. latifolia* are very ornamental and well worthy of cultivation. The dried spikes, both natural and dyed in different colors, are much used in bouquets, etc., of dried flowers and grasses. *U. Palmeri*, collected near the mouth of the Colorado River, by Mr. Palmer, and described by him, is interesting as supplying the Indians of that section with a large amount of grain. "They come together at the proper season, in April, and gather this, to them, important article of food. As its quantity depends on the overflow of the tides, and the tides are sure to occur, they have an assured crop without any other labor than gathering and caring for the grain. * * * The grain has to be cut when a little green because of the easy separation of the spikelets. In order to dry the heads as quickly as possible large fires are made, and the heads are piled around so that the flames penetrate between them. When they have been sufficiently exposed to the fire a stick is used to thrash the heads, which breaks up the spikelets, but does not separate the chaff or glumes from the grain. The dried and dissevered spikelets are then taken to a piece of ground prepared for the purpose, and the Indians tread upon and rub the grain between their feet until the seeds are shelled out.

"This process is more easily accomplished after the grain has been exposed a while to the sun, but in any case it is pretty trying to the feet because of the sharp, stiff points of the chaff. The action of the tide knocks off and carries away considerable of the grain, but this is left in rows at the edge of the contiguous dry land, and the Indians gather much of it and rub it out. They have to be expeditious in their harvest, as wind storms are liable to arise and destroy or injure the product of their labors."—Garden and Forest.

Upas Tree. See *Antiaris toxicaria*.

Ura'nia. Traveler's Tree. From *ouranios*, sublime; in allusion to the stateliness of the tree. Nat. Ord. *Scitamineæ*.

U. speciosa, the only known representative of this genus, was formerly called *Ravenala Madagascariensis*. It is a magnificent plant, having a palm-like appearance, and is called in Madagascar the Traveler's Tree, because the base of the leaves, when cut, yield an abundant and refreshing juice, with which travelers allay their thirst. The leaves are of gigantic size, somewhat like those of *Musa Ensete*, but arranged in two rows on opposite sides of the stems. Young plants are obtained by suckers or from seed.

Urceo'la. A genus of *Apocynaceæ*, consisting of one species. *U. elastica*, a large, climbing, milky-juiced shrub or tree, frequently with a trunk as thick as a man's body, found only in Borneo, Sumatra, and other islands of the Eastern Archipelago, where its milky juice is collected and forms an inferior kind of Caoutchouc. It produces a fruit about the size of an orange, much relished both by the natives and by European residents.

Urceolate. Pitcher-shaped, contracted at the mouth.

URO

Urceoli'na. Urn-Flower. From *urceolus*, a small cup or pitcher; in allusion to the smallness of the cup, or nectary, inside the flower. Nat. Ord. *Amaryllidaceæ*.

A small genus of handsome, summer-blooming, Peruvian bulbs. The flowers are yellow, red and green. They grow freely in the open border and require a long season of rest. They may be kept during winter like the *Tigridias*, and planted out in the border after all danger from frost is past. They were introduced in 1837, and are propagated by offsets. Syn. *Pentlandia*.

Urens. Stinging.

Urgi'nea. From the name of an Arab tribe, *Ben Urgin*, in Algeria. Nat. Ord. *Liliaceæ*.

A genus of over twenty bulbous plants of little interest. The bulbs of *U. maritima*, the old *Scilla maritima*, are known in medicine as Squills. The species are natives of the Mediterranean region, and have large bulbs, whence proceed the leaves and long-stalked racemes of flowers, the latter, however, being produced first.

Urn Flower. See *Urceolina*.

Urope'dium. From *oura*, a tail, and *podion*, a slipper; in allusion to the long-tailed petals. Nat. Ord. *Orchidaceæ*.

A genus of terrestrial Orchids nearly related to *Cypripedium*. It consists of only one described species, *U. Lindeni*, a native of New Grenada, which is found growing at an elevation of 8,500 feet above the sea level. It differs from *Cypripedium* in its broader, flattened lip, and extremely long-tailed petals. The leaves are about a foot long, oblique at the extremity, shining, and fleshy in texture. The flowers are solitary, produced on long peduncles; the sepals are ovate-lanceolate, yellow, streaked with orange; the petals are linear-lanceolate, extended into a long, narrow tail, a foot or more in length, and purple-orange at the base. This is a remarkable and very interesting plant, which should find a place in every collection. It was introduced in 1849, and requires the same treatment as *Cypripedium*. This genus is included by some authorities under *Selenipedium*.

Urope'talum. From *oura*, a tail, and *petalon*, a petal; the petals are lengthened into tail-like appendages. Nat. Ord. *Liliaceæ*.

A small genus of Cape bulbs, very singular and interesting. The flowers are green, or green and orange, borne on slender scapes in terminal racemes. They are tender, and must be kept warm and dry during winter, and planted out in the border in early spring. They were first introduced in 1808, and are propagated by offsets. Syn. *Dipcadi*.

Uroski'nnera Spectabilis is the sole representative of a Central American genus of *Scrophulariaceæ*, named in honor of *Mr. G. Ure Skinner*, who introduced so many new plants from Central America to our gardens. It is an undershrub somewhat resembling in habit certain *Gesneraceæ*, and covered in all parts with soft hairs. The rosy-violet, rather large flowers, are arranged in terminal, crowded panicles, and supported by filiform bracts. It was introduced from Mexico in 1856, and may be increased by cuttings in heat.

Urospa'tha. From *oura*, a tail, and *spatha*, a spathe; referring to the long-pointed spathe in most of the species. Nat. Ord. *Aroideæ*.

A genus of warm-house Arads with thick rhizomes, natives of tropical America. *U. dehiscens* and *U. sagittifolia* are in cultivation and require a great deal of water when growing. They may be propagated by division of the root-stock.

Urospe'rmum. Sheep's Beard. From *ouros*, a tail, and *spermum*, a seed; alluding to the beaked, hard, dry, one-seeded fruit. Nat. Ord. *Compositæ*.

A small genus of hardy, annual or biennial, slightly-branched plants, natives of the south of Europe. *U. Dalechampi* is a handsome biennial, of dwarf tufted growth, producing heads of large, lemon-colored blossoms. It thrives in any light soil in an open position and is quite hardy. Syn. *Arnopogon*.

Ursi'nia. A genus of *Compositæ*, included under *Sphenogyne*.

Urti'ca. Nettle. From *uro*, to burn; in reference to the stinging properties of most of the species. Nat. Ord. *Urticaceæ*.

The Roman Nettle, *U. pilulifera*, is sometimes grown in gardens as an ornamental annual, but the sting is much worse than that of *U. dioica*, the common Nettle. Some of the exotic species are very handsome; as, for example, *U. reticulata*, a native of Jamaica, which has red and yellow flowers and deep green leaves. The stinging effects of *U. urentissima* (Devil's Leaf), a native of Timor, are said to be so violent as to last for twelve months, and sometimes to cause death. Many species produce excellent fibre, and several are considered to possess medicinal properties. There are several native and naturalized species, all troublesome weeds.

Urtica'ceæ. A natural order consisting of trees, shrubs, or herbs, from almost every part of the globe, with alternate and lobed leaves furnished with stipules and small, inconspicuous, unisexual flowers, usually in cymes or heads, not in catkins. They possess narcotic qualities and yield valuable fibres. *Cannabis sativa* yields the well-known Hemp, one of our most valuable fibres. It is imported in large quantities from Russia, and is produced in a small way in this country. The plant grows naturally in the cooler parts of India, and there develops narcotic qualities, which seem to reside in the resin which covers the leaves. What are called Hemp Seeds, used for the food of birds, are in reality Hemp fruits, each containing a single seed. *Humulus Lupulus*, the well-known Hop, possesses both tonic and hypnotic properties, that is, a power to produce sleep. The scales of the Hop heads are covered with resinous matter, which has an aromatic odor. Among the other important numbers of this order may be enumerated the Bread-fruit Tree (*Arctocarpus incisa*), Elm (*Ulmus*), Fig (*Ficus Carica*), India-rubber Plant (*Ficus elastica*) and Mulberry (*Morus alba* and *M. nigra*). Several of the species are valuable as timber trees. It includes nearly one hundred and ten genera and fifteen hundred species.

Usnea. This word is said to have originated in the Arabic *achneh*, or *achnen*, which is, according to Golius, the name by which the Arabian physicians designate Lichens in general. A genus of Lichens, the species of which grow on rocks and trunks of trees, from which latter circumstance they are often called Tree Moss or Tree Hair. Some of the southern species, as *U. Melaxantha* are magnificent. In the stems of this (which attains a considerable size), concentric zones of growth have been observed by Sir J. D. Hooker.

Ustilago. From *ustus*, burnt; in allusion to the scorched appearance of the organs of the host-plants, in which the spores are developed. This genus is interesting as including the various kinds of Smut which are so injurious to grasses, wheat, corn, etc.

Utricle. A small, bladdery pericarp; any thin, bottle-like body; the two confluent glumes of *Carex*.

Utricula'ria. Bladderwort. From *utriculus*, a little bladder; applied to the small inflated appendages of the roots. Nat. Ord. *Lentibulariaceæ*.

A genus of curious aquatic plants, common throughout the United States. They are particularly interesting in that during the early stage of the plant, the small, bladder-like appendages at the roots are filled with water; but when the flowers are ready to expand they become filled with air. After the season of flowering, the vesicles become again filled with water, and the plant descends to ripen its seeds at the bottom. *U. minor*, *U. vulgaris*, *U. minor* and *U. neglecta* are worthy of being grown as curiosities. *U. Endresii* (pale lilac), introduced from Costa Rica in 1874, and *U. montana* (white), from the West Indies in 1871, very beautiful stove-house epiphytes with showy, Orchid-like flowers, are often grown in the Orchid-house, and succeed best in baskets of fibry peat and sphagnum, suspended near the glass. *U. Humboldtii* and *U. reniformis* grow best in large pans of sphagnum partially plunged in water. They are very beautiful and interesting plants.

Utriculiform. Having the shape of a bottle.

Uva'ria. From *uva*, a cluster of grapes; alluding to the fruits of some of the species. Nat. Ord. *Anonaceæ*.

A genus of twining or climbing shrubby plants, natives of tropical Africa and Asia. Several species, formerly included here, are now referred to other genera. *U. Kirkii* is a medium-sized undershrub, and *U. Zeylanicum*, a large woody climber. Both thrive in a compost of sandy loam and leaf mould, and are increased by cuttings of the ripened wood in heat.

Uvula'ria. Bellwort. The plants were formerly used in diseases of the *uvula*; whence the name. Nat. Ord. *Liliaceæ*.

A small genus of very handsome, hardy, herbaceous perennials with lily-like flowers, borne solitary, or rarely in pairs, on slender peduncles, from the uppermost leaves. The flowers are bright and greenish yellow. *U. grandiflora* grows from one to two feet high, with long, clear yellow, drooping flowers, very attractive in early summer. It is an excellent plant for a partially shaded position in the rock-garden. There are several other species common throughout the United States, in rich, moist, shady woods.

V.

VAC

Vacca'ria. Cow Herb. Named from *vacca*, a cow. Nat. Ord. *Caryophyllaceæ.*

A coarse-growing, hardy, herbaceous perennial, formerly called *Saponaria Vaccaria.* It was introduced into the garden, but has escaped and become common in waste places.

Vacciniace'æ. A natural order consisting of much-branched shrubs or small trees, often evergreen, with alternate, undivided leaves without stipules, the flowers growing solitary or in racemes, often richly-colored, and the fruit, usually a berry, frequently edible. The species are numerous in the temperate and colder parts of the world, especially in swamps or sub-alpine countries, and on mountain chains within the tropics. They are distributed into about twenty-five genera and over three hundred species, the greater number being included in *Vaccinium* and *Thibaudia.*

Vacci'nium. High-bush Cranberry, Blueberry, Bilberry. An ancient Latin name, whether of a berry or a flower is not satisfactorily known. Nat. Ord. *Vacciniaceæ.*

An extensive genus of interesting shrubs, many of which are indigenous to the United States, and others to Europe and the East and West Indies. *V. macrocarpa* of some authors is the Large or American Cranberry, common in bogs North and West. *V. stamineum* is the Squaw Huckleberry, common in dry woods from Maine to Michigan. *V. uliginosum* is the Bog Bilberry, a low-growing species, common in high elevations in New England and New York. *V. corymbosum* is the common or Swamp Blueberry, everywhere common except southward. *V. Vitis-Idæa*—the vine of Mount Ida—is the Cow-berry found sparingly in this country but common in Britain. The beautiful, white-berried, greenhouse shrub, *V. leucobotrys*, though rarely seen in collections in this country, is well worthy of cultivation. It was introduced under the name of *Epigynium leucobotrys* from Bengal in 1859. There are many other species and varieties, the slight difference in them noticeable only by the botanist. For the common Cranberry and its culture, see *Oxycoccus.*

Vaginate. Sheathed; surrounded by a sheath.

Valdi'via. So called from the town of Valdivia in Chili. A genus of *Saxifragaceæ*, consisting of a single species. It is a singular and ornamental, small, half-hardy, evergreen shrub, with short, erect, pyramidal panicles of pretty rose-colored flowers, the tube-like portion of which is angular, and the tips of the petals recurved; the flowers are three-quarters of an inch long. Introduced in 1863.

Valerian. See *Valeriana.*

Valeria'na. Said by some to be named after Valerius, who first used it in medicine; others assert that it is derived from *valere*, to be in health, on account of the medicinal qualities of *V. officinalis.* Nat. Ord. *Valerianaceæ.*

Hardy perennials, most of them showy border plants of easy culture. Some of them have long been in cultivation. Those best known are natives of Switzerland. The golden-leaved variety of *V. Phu* is a highly effective plant, particularly in spring, when its foliage is newly developed. It is of tufted, neat habit, grows freely in any soil and is perfectly hardy. There are several native species, from which the tincture of Valerian is obtained. All the species are propagated by division.

VAL

Valeriana'ceæ. A natural order consisting of annual or perennial herbs, usually strong-scented or aromatic (especially their roots), with rather small, but often elegant, flowers in terminal cymes or panicles. They are found in temperate climates, chiefly in the mountains of the northern hemisphere or of South America. The medicinal qualities of the order have been known from ancient times, and the plants now take rank at the head of the vegetable anti-spasmodics. About a dozen genera are included in the order, and nearly three hundred species. *Centranthus*, *Valeriana* and *Valerianella* are the most familiar examples.

Valeriane'lla. Lamb's Lettuce, Fetticus, Corn Salad. A diminutive of *Valerian.* Nat. Ord. *Valerianaceæ.*

A genus comprising about fifty species of small, hardy, annual herbs, with repeatedly-forked stems, natives of Europe, North Africa, Western Asia and North America. *V. olitoria*, a native of Great Britain, generally known as Fetticus, is the only species of economic interest. It is used as a salad and is sown and cultivated exactly as Spinach. It is also grown to a large extent by the German gardeners around New York in cold frames, as an early spring salad. Syn. *Fedia olitoria.*

Valerian Greek. A common name for *Polemonium cæruleum*, which see.

Valerian. Red or Spur. *Centranthus ruber.*

Vallisne'ria. Eel Grass, Tape Grass. Named in honor of *A. Vallisneri*, an Italian botanist. Nat. Ord. *Hydrocharidaceæ.*

A genus of aquatic plants, common in slow-running waters, remarkable on account of the extremely curious manner in which the process of fertilization is effected. The male and female flowers are on different plants, and the latter rise on long spiral stalks, which gradually uncoil above the surface of the water, while the latter are produced at the bottom. Before, however, the anthers burst to discharge the pollen, the male flowers detach themselves from their stalks, and rise up to the surface, on which they float like little white bubbles. After the pollen has been distributed over the stigmas, the male flowers wither, and the spiral stalks of the females coil up again so as to draw the seed-vessel under the water, that it may ripen at the bottom and burst when just in the proper place to deposit its seeds. Nothing can be more beautiful than the whole arrangement;

and nothing can show more strikingly the admirable manner in which the wonderful economy of nature is carried on. *V. spiralis*, the best known and only species in our waters, is admirably adapted for growing in the aquarium. Besides being a beautiful evergreen, one of the essentials for the aquarium, one can, by growing it, witness that wonderful and interesting phenomenon in plant life.

Vallo'ta. Scarborough Lily. Named in honor of *Pierre Vallot*, a French botanist. Nat. Ord. *Amaryllidaceæ*.

V. purpurea, the only known species, is a native of the Cape of Good Hope, where it is found in boggy places. It is an evergreen bulb, producing its splendid spikes of brilliant scarlet blossoms (not *purple*, as the name implies) in August, and occasionally at other periods. It is one of the most showy of the interesting family to which it belongs, and the little care required to grow it makes it particularly desirable. It does best with ordinary pot culture, requiring liberal watering, except for a few months in winter. The bulbs should not often be separated, but occasionally shifted into larger pots when they become thoroughly root-bound. Too frequent shiftings are injurious to this bulb; they do much better when pinched, and it is not an uncommon occurrence to see twenty-five flower spikes, with five or eight flowers each, at one time, from a ten-inch pot of the bulbs. They increase rapidly from offsets, which may be picked off the top of the pot without disturbing the main bulbs. They may be grown successfully in the border, and dried off in winter, like the *Gladiolus*, except that they should be taken up after a slight frost and packed away in boxes of earth, without disturbing the tops, watering only once or twice during the winter. There are two or three varieties, differing only in the size of the flowers. Introduced in 1774.

Valo'nia. A commercial name for the large capsules, or Acorn cups, of *Quercus Ægilops*, which are used for tanning, dyeing and making ink.

Valora'dia plumbaginoides. A synonym of *Plumbago Larpentæ*.

Valvate. United by the margins only, as the valves of a capsule.

Valves. The doors by which various bodies open; the term is also applied to the pieces into which a capsule splits.

Va'nda. *Vanda* is the Sanscrit name of the original species of this genus. Nat. Ord. *Orchidaceæ*.

A genus of magnificent epiphytal Orchids from tropical Asia. Several of the species are found in our best Orchid houses, where they are most conspicuous objects, both on account of the size and beautiful colors and markings of the flowers, and for their delicious fragrance. The plants may be attached to blocks of wood or cork, and suspended from the roof of the house. From March till May the heat should range from 70° to 90°, or even more in sunny weather, and every morning and evening they should be surrounded with vapor, besides an application of water from the syringe once a day. From May till September, which with us is the blooming season, the same degree of heat should be maintained, but with a diminution of the moisture as the flowers advance; and afterward, through the winter, moisture may be withheld, and the temperature reduced to 60°. Some of the species have been under cultivation since 1810. *V. tricolor*, one of the best, was introduced in 1846. Of this species there are some fifteen or more varieties, all of great beauty. *V. cærulea*, a most lovely light-blue species, introduced from Khasya in 1849, requires less heat than the other kinds, and sometimes succeeds best under green-house treatment. They are propagated by carefully detaching the lateral shoots, when about six inches long.

Vani'lla. An alteration of *Vaynilla*, which is a diminutive of *Vaina*, a Spanish word, signifying a sheath; in reference to the cylindrical pod being like the sheath of a knife. Nat. Ord. *Orchidaceæ*.

A small genus of tropical, climbing Orchids, one of the most important of the whole family, not because of its flowers, but for the commercial value of the fruit, which is universally used in the preparation of extracts for flavoring. The best *Vanilla* is the produce of *V. planifolia*, a native of Mexico (Chapman, in his "Flora of the Southern States," credits Curtiss as having found this species on the borders of the Everglades), but several other South American species are also used. The flowers of this genus are white, striped with red, and quite insignificant; these flowers are succeeded by pods about six inches in length and one-fourth of an inch in diameter. The pod contains, besides its numerous seeds, a black, oily and balsamic substance, which, recently gathered, is humid, and its odor is said to produce intoxication. The pods are gathered during the last three months of the year, and are carefully dried by exposure to the sun's rays until they are made warm, in which state they are wrapped in woolen cloths to promote and absorb evaporation. When thoroughly cured they are ready for shipment. The extract is obtained by cutting the pods in small pieces, and pulverizing in a mortar containing about four parts of fine glass to one of Vanilla. It requires a great amount of labor to get the Vanilla fine enough for the dilute alcohol to act upon it in a manner that will secure the whole. After the pulverized mass has been in alcohol for several days, it is filtered through paper, and is fit for use.

Vanilla Plant. The popular name of *Liatris odoratissima*.

Vanilla or Seneca Grass. See *Hierochloe borealis*.

Variabilis. Presenting a variety of character; as when leaves are variously modified on the same plant.

Variegated. Irregularly colored.

Variegated Laurel. *Aucuba Japonica*.

Variegated Rush. See *Scirpus*.

Variety. A term indicating a lower grade or sub-division, next to the species; as the different sorts of Pears, Apples, Geraniums, Roses, etc.

A variety can only be propagated with certainty by grafts, cuttings, bulbs, tubers, or any other method which produces a new plant by the development of one or more buds taken from the old one.

VAR

Variolate. Marked as if by the pustules or pittings of small-pox.

Varnish Tree. A common name for *Ailantus glandulosus*, *Rhus vernicifera*, etc.

Vascular. Furnished with, or relating to vessels or ducts.

Vasculum. A botanist's collecting-box. The term is also applied to a pitcher-shaped leaf.

Vases. These are formed of iron, stone, earthenware etc., and are usually raised on a pedestal to a height of four or five feet. They are of various sizes and patterns. The bowls for the soil vary in depth from six to eighteen inches; but in all cases holes must be made in the bottom (if not already there) to allow free drainage for water, for, without these (and some are made without them), the soil would soon get saturated and sour. Almost the same character of plants is used for planting vases as for window boxes (which see). A very beautiful practice is now in use to plant them in early spring with Pansies, which remain in bloom until June, the time at which the summer plants are ready to be planted to take their place. Vases are usually exposed to the full force of the sun on the open lawn, and, consequently, require a great deal of watering to keep them in good condition. By mulching the surface with moss during summer, evaporation will be checked and a great deal of labor saved.

Vauqueli'nia. A genus of *Rosaceæ* comprising one species with saw-toothed leaves and pure white flowers. It was first described by Dr. Torrey as Spiræa Californica, but was referred to its right genus by Mr. Watson. It is a native of Mexico, Arizona, etc.

Vegetable Fire-cracker. A common name for *Brodiaca coccinea.*

Vegetable Hair. A name given to *Tillandsia usneoides.*

Vegetable Horse-hair. The fibre of *Chamærops humilis.*

Vegetable Ivory-nut. See *Phytolephas.*

Vegetable Marrow or **Midshipman's Butter.** See *Persea.*

Vegetable Marrow. An English name for a variety of summer Squash. The one usually grown is about nine inches long and four to five in diameter. It is used in every stage of its growth, and is particularly tender and sweet. It is grown in all respects like the several varieties of our summer Squashes.

Vegetable Mercury. See *Franciscea.*

Vegetable Oyster. See *Tragopogon porrifolius.*

Vegetable Sheep. A name given to *Cibotium Barometz.*

Veins. The small ribs or branches of the framework of leaves.

Vei'tchia. Named in honor of the late James Veitch, of Chelsea, London; the leading nurseryman of his day. Nat. Ord. *Palmaceæ.*

A beautiful genus of Palms closely allied to *Kentia*, with which they are often confounded. Two species are described, and are valued ornaments of our stoves. Introduced from the New Hebrides and Fiji in 1868 (syn. *Kentia*). The name was formerly applied by Dr. Lindley to a curious Japanese conifer, since proven to be a monstrous state of some *Picea.*

VEN

Ve'lla. Said to be Latinized from *Veler*, a Celtic name for such a plant. Nat. Ord. *Cruciferæ.*

A small genus of much-branched, half-hardy shrubs, natives of Spain. *V. Pseudocytisus*, the species most generally cultivated, has large, yellow flowers, with long, dark purple claws and entire leaves. It may be increased by cuttings in spring.

Vellei'a. Named after *Major Velley*, who was greatly interested in *Algæ.* Nat. Ord. *Goodeniaceæ.*

A genus of green-house, perennial herbs, having a short, thick stock and radical leaves, natives of Australia. Their flowers are yellow, like those of the *Goodenia*, and they are closely allied to *Euthales.*

Vello'zia. Named after *Velloz*, a Portuguese naturalist, who edited the works of Vandelli on Brazil. Nat. Ord. *Amarillidaceæ.*

The Vellozias are like perennial Lilies, and grow from two to ten feet high, having trunks as large as a man's body, branching, and having tufts of leaves on the top like the Yucca. The flowers are large, white, blue or violet, produced singly or on slender scapes from the tips of the branches. They are showy and attractive features in the mountain regions of Brazil and Australia. Syn. *Barbacenia.*

Velthei'mia. Named in honor of *F. A. Veltheim*, a German botanist. Nat. Ord. *Liliaceæ.*

Large-growing bulbs from the Cape of Good Hope. The flowers are flesh-color and of but little beauty, though of long duration. *V. viridifolia* has beautiful, broad, shining, green leaves, with undulated margins and a flower scape one to two feet long. It is a very interesting and showy species. The bulbs rest the entire summer, and come into bloom in early winter. They are grown from seed, which they produce freely. The bulbs rarely divide or make offsets. Introduced in 1781.

Velvet Flower. A common name for *Amaranthus caudatus.*

Velvet Grass. See *Holcus.*

Velvet Leaf. *Abutilon Avicennæ* and *Lavatera arborea.*

Venation. The arrangement of veins in a leaf, etc.

Veni'dium. Meaning of the name not given. Nat. Ord. *Compositæ.*

A genus of green-house or half-hardy, perennial plants, natives of southern Africa. *V. calendulaceum* is a low-growing plant, somewhat of a trailer, bearing, in summer, a profusion of showy, Marigold-like, yellow blossoms. Cuttings put in in August root freely, or plants may be readily raised from seeds sown in spring. It is the best of the genus and well worthy of cultivation.

Venose. Veiny; having many branched veins.

Ventila'go. From *ventilo*, to be exposed to the wind, and *ago*, to drive away; in allusion to the fruit being winged, and scattered by the wind. Nat. Ord. *Rhamnaceæ.*

A genus of stove-house, climbing shrubs, found all over the tropics. *V. madraspatana* is the only species in cultivation, and is rarely seen except in botanical collections.

Ventilating. Or "Airing," as gardeners call it, is an important operation in growing plants

under glass, and ignorance or carelessness in the work often results in dire disaster to the contents of the hot-bed, green-house or grapery. It often happens, when inexperienced carpenters undertake the erecting of green-house structures, that they are built with entirely inadequate means of ventilation, so that, no matter how careful the person in charge may be, he has not the means allowed to provide sufficient ventilation. In a span-roofed green-house or grapery, having a base width of twenty feet, the glass roofs sloping to the east and west will be each about thirteen feet, making twenty-six feet in the span. To properly ventilate a structure of this kind, movable sashes, not less than thirty inches in width, extending the entire length of the roof, should be hinged to the apex on the *east* side. The sashes, when lifted up by the patent ventilating apparatus, are raised from one inch to thirty inches, as desired, the entire length; thus, when fully up, about one-tenth part of the entire glass roof is thrown open for ventilation; and in hot days this is often found to be none too much. In a series of green-houses, requiring different temperatures, it is a good plan to mark the maximum and minimum allowed for ventilation close to each thermometer, so that the workman in charge of ventilating can be held to accountability; for example, if 70 is the degree required, let the maximum of temperature be 75° and the minimum 65°, allowing a range of ten degrees. The patent ventilating apparatus usually costs about fifty to seventy-five cents per running foot; but it is indispensable to a well-regulated green-house or grapery, from its power to grade the amount of ventilation to suit all weathers. In the use of portable sashes for hot-beds or frames, the best way to ventilate is to raise the sash at the back by pieces of wood so notched that from one inch to five or six inches can be given as required.

Ventral. Belonging to that side of a simple pistil, or other organ, which looks towards the axis or centre of the flower; the opposite of dorsal.

Ventricose. Inflated, or swelled out on one side.

Ventriculose. Abounding in veinlets.

Venus' Fly-trap. See *Dionœa muscipula.*

Venus' Hair. A common name for *Adiantum Capillus-veneris.*

Venus' Looking-Glass. See *Specularia speculum.*

Venus' Navelwort. See *Omphalodes.*

Venus' Slipper. See *Cypripedium insigne.*

Vera'trum. False or White. Hellebore. From *vere*, truly, and *ater*, black; in allusion to the color of the roots. Nat. Ord. *Liliaceæ.*

A genus of hardy, herbaceous, coarse-growing plants, with large, coarse, fibrous roots, which are very poisonous. *V. viride*, a species common in swamps and marshy grounds, is popularly known as White Hellebore or Indian Poke. The powdered roots of this species and *V. album* are used to destroy Caterpillars, Rose Beetles and other insects. It is the base of some of the so-called Persian Insect Powders, which should therefore be used with care.

Verba'scum. Mullein. Aaron's Club. Said to be from *barbascum*, bearded; in allusion to the bearded filaments. Nat. Ord. *Scrophulariaceæ.*

An extensive genus of rather coarse-growing, more or less woolly, biennial or perennial herbs, natives of Europe, northern Africa and west and central Asia. *V. Chaixi* or *V. vernale*, as it is sometimes called, is a true perennial and is one of the most showy of the species. It grows to the height of ten feet and its large, green leaves are extremely effective. The color is good and the panicle of flowers enormous. The quantity of yellow flowers with purplish filaments that are borne on one of these great branching panicles is something marvelous. It is well suited for the back of a mixed border, for grouping with other plants of remarkable size or form of foliage, or for placing here and there in open spaces in the shrubbery. *V. phœniceum* is a very handsome species, distinct from all the others by the flowers being of various hues, but usually of a violet-blue, overlying a yellow ground striped with violet. It is of slender growth, from two to four feet high, and the flowers, which are large and showy, are produced numerously in long spikes.

Verbe'na. Vervain. Said to be from its Celtic name, *Ferfæn.* Nat. Ord. *Verbenaceæ.*

The beauty of this extensive genus is well known, and needs no comment. They are all peculiarly adapted for growing in beds in the flower-garden and are extensively grown for that purpose. As a decorative plant they are, comparatively, of recent introduction. Our garden varieties have all originated from the following species: *V. melindres*, a low, creeping plant with intense scarlet flowers, introduced from Buenos Ayres in 1827. *V. Tweediana*, of freer growth and more upright habit, umbels larger, and florets more profuse, but of a less vivid color, was introduced in 1834 from Brazil. *V. teucrioides*, a taller-growing species, of much coarser habit, with flowers of pure white, in narrow-pointed spikes, and very fragrant, was introduced from Montevideo in 1837. *V. multifida*, with lilac-purple flowers, was introduced from Peru in 1818. These species we understand were first introduced to this country by W. C. Brackenridge, of Baltimore; and Robert Buist, of Philadelphia, quick to see their adaptability as bedding plants, was the first to cross-breed them and introduce many new sorts, the parents of the many varieties now in commerce. Several species have been found in the United States, and among them *V. montana*, a hardy perennial from the Rocky Mountains, a very free-flowering species, with flowers of a bright rose, changing to lilac—a decided acquisition to the flower-garden. *V. aubletia*, with spikes of showy, purple flowers, a hardy biennial, is found in Illinois and westward. *V. venosa* is a beautiful, half-hardy perennial species introduced from Brazil in 1830, not so well known as it deserves. Its lilac or bluish flowers are produced in great profusion rendering it a first-rate subject for bedding, especially if mixed with silver-leaved Geraniums. It is easily kept through the winter, and if its fleshy roots are stored thickly in boxes, any number of plants may be propagated in the spring from the young shoots that are abundantly produced. It is easily raised from seed

which should be sown four months before the plants are wanted, as the seed is frequently slow in germinating. Verbenas are easily grown from seed, which should be sown in a hot-bed or the green-house in early spring, and once pricked out before planting in the flower-bed. Plants from seed will be more vigorous than from cuttings; but when special colors are wanted seedlings cannot be depended upon. At the low price the plants are now sold in the markets, it is cheaper to buy them than to grow them from seed; but when the amateur is not convenient to the florist, the supply can be easily kept up from seed. In growing Verbenas, successive plantings should not be made on the same ground; the less frequently the better. It is not that they exhaust the soil that renders a change necessary, but when grown more than once on the same spot, they are far more liable to be attacked by the Aphis at the roots, which is fatal to them. The varieties selected by florists in the United States are far superior to those of Europe, so that for the past twenty years hardly any importations have been made of either seeds or plants. The plant is better suited to our climate, and is far more extensively cultivated here than in Europe. The Verbena delights in a sweet, turfy loam; clayey or sandy soils should be avoided in the selection of the bed.

Verbena Oil Plant. A name given to *Andropogon Schœnanthus.*

Verbena. Sand. A common name for *Abronia.*

Verbena. Sweet Scented. See *Aloysia citriodora.*

Verbena'ceæ. A natural order of trees, shrubs or herbs, widely scattered over the warmer parts of the globe, and especially abundant in south temperate regions, a few genera only being found in Europe, northern Asia and North America. Teak, one of the most important timbers in the world, is the wood of *Tectona grandis.* The well-known Lemon Verbena, *Aloysia* (*Lippia*) *citrioidora*, and several species of *Lantana* are used as Tea. The order is distributed into over fifty genera and nearly seven hundred species. *Clerodendron, Lantana, Verbena* and *Vitex* are good examples.

Verbesi'na. Crown Beard. Altered from *Verbena*, which some of the species are supposed to resemble. Nat. Ord. *Compositæ.*

A genus of annual or perennial herbs or shrubs, natives of the West Indies, California, Texas and Mexico. *V. encelioides* is a showy, half-hardy species, one to two feet high, with broad clusters of yellow flowers. *V. gigantea*, an ornamental shrub from Jamaica, about six feet high, forms, when young, a very pleasing plant for decorative purposes, its round, green stems being covered with large, winged, pinnate leaves of a glistening, delicate green color and very elegant outline. *V. pinnatifida* is a roughish, half-shrubby species, with a winged stem and woolly, oval leaves with lobed or toothed margins. They may be increased by seeds or divisions; the shrubby species by cuttings. Syn. *Ximenesia.*

Verei'a. A synonym of *Kalanchoe.*

Vermicular. Worm-shaped.

Vernal. Appearing in spring.

Vernal-Grass. The common name for *Anthoxanthum odoratum.*

Vernation. The arrangement of leaves in a bud.

Vernicose. Covered with natural varnish; appearing as if varnished.

Verno'nia. Iron Weed. Named in honor of *William Vernon*, a botanical traveler in North America. Nat. Ord. *Compositæ.*

A very large genus of herbs or shrubs, chiefly tropical, but found most copiously in the warmer parts of America. *V. Noveboracensis* is common on low grounds near the coast, from Maine to Virginia, and with *V. fasciculata* on the prairies and river-banks in the Western States, Ohio to Wisconsin and southward.

Vero'nica. Speedwell. The derivation of the word is doubtful; perhaps the flower of St. Veronica. Nat. Ord. *Scrophulariaceæ.*

An extensive genus of, for the most part, hardy ornamental plants, well adapted for the borders of the flower garden. Their stature varies from creeping plants to others three or four feet high. The prevailing color is blue, though white, pink, red and purple are found among them. The green-house species are most generally shrubby and deserve attention, being easy to grow and flower, and they are handsome in foliage, habit and inflorescence. This class delights in a mixture of leaf mould and loam, and with plenty of root-room speedily make fine specimens. The species usually met in the green-house are from New South Wales. The hardy, herbaceous species are distributed throughout the temperate regions of both continents. The shrubby kinds are generally increased by cuttings; the herbaceous or annual sorts by division or by seeds.

Verrucose. Warty; covered with wart-like, sessile elevations.

Versatile. Turning freely on its support, swinging to and fro.

Verschaffe'ltia. Named in honor of *Ambrosius Verschaffelt*, a nurseryman of Ghent, who wrote a work on Camellias in 1848. Nat. Ord. *Palmaceæ.*

V. splendida, the only recognized species, was introduced from the Seychelle Islands in 1864. It is a very handsome stove-house species with cuneate-obovate, deeply-incised leaves, three to five feet long. The stem is six to twelve inches in diameter and with the leaf-sheaths and petioles very spiny when young. It is known in cultivation as *Regelia magnifica, R. majestica* and *R. princeps.*

Vertex. The apex of an organ.

Verticillate. Arranged in whorls.

Vertico'rdia. Juniper Myrtle. From *verto*, to turn, and *cor, cordis*, a heart; a title of Venus, to whom the Myrtle was sacred. Nat. Ord. *Myrtaceæ.*

A genus of green-house shrubs, much resembling the Heaths or Diosmas, natives of Australia. They are of easy culture in a compost of sandy loam and leaf-mould, and are readily increased by cuttings of the half-ripened shoots.

VERBASCUM OLYMPICUM.

VERONICA (SHRUBBY).

VERBENA (STRIPED).

VICIA SATIVA.

VALLOTA PURPUREA.

VINCA ROSEA.

VICIA FABA (ENGLISH BROAD BEAN).

VISCARIA OCULATA.

VIOLET (MARIE LOUISE).

VISCUM (MISTLETOE).

VIOLET (SINGLE).

VICTORIA REGIA (AMAZON WATER LILY).

VER

Vervain. See *Verbena.*
Blue American. *Verbena hastata.*
Rocky Mountain. *Verbena montana* (*V. Aubletia*).

Vesica'ria. From *vesica*, a bladder or blister; alluding to the inflated pods. Nat. Ord. *Cruciferæ.*

A genus of about twenty species of annual or perennial herbs, natives of North America, Europe, Asia and the Andes. A few species are worthy of cultivation, the others being straggly and weedy in appearance. The best known are *V. græca* and *V. utriculata*, which have both been long in cultivation and flourish on dry, sunny parts of the rock-garden in dryish soil. They are easily increased by seeds.

Vesicle. A small bladder or air cavity.

Vesicular, Vesiculose. Inflated, bladdery.

Vesli'ngia. Named after *John Vesling*, once Professor of Botany at Padua. Nat. Ord. *Compositæ.*

A small genus of tropical African annuals with yellow flower-heads. According to Bentham and Hooker, *Guizotia* is the proper name of this genus.

Vespertine. Appearing or expanding early in the evening.

Vespu'ccia. Commemorative of *Amerigo Vespucci.* Nat. Ord. *Alismaceæ.*

A small genus of aquatic plants, natives of tropical South America. *Limnocharis Humboldtii* has been referred to this genus, but is now placed by Bentham and Hooker under *Hydrocleis* as *H. Commersoni.*

Ve'stia. Chilian Box Thorn. Named in honor of *L. C. de Vest*, Professor at Grätz, 1776–1840. Nat. Ord. *Solanaceæ.*

V. lycioides, the only described species, is an interesting, erect, branching, green-house shrub, with yellow flowers, pendulous from the tips of the branches. It was introduced from Chili in 1815, and is propagated by cuttings.

Vetch. The common name for the genus *Vicia.*
Bastard or Bladder. The genus *Phaca.*
Bitter. See *Orobus.*
Bitter Black. *Ervum Ervilia.*
Bush. *Vicia sepium.*
Chickling. A common name for *Lathyrus sativus.*
Common. *Vicia sativa.*
Crown. A popular name for the genus *Coronilla.*
Horse-shoe. *Hippocrepis comosa.*
Indian. *Ervum dispersmum.*
Kidney. *Anthyllis vulneraria.*
Liquorice. A common name for *Astragalus glycyphyllos.*
Milk. See *Astragalus.*
Tufted. *Vicia Cracca.*
Wood. *Vicia sylvatica* and *V. Americana.*
Yellow-flowered. *Vicia lutea.*

Vetchling. Meadow. *Lathyrus Nissolia.*
Pea. *Lathyrus pisiformis.*
Yellow-flowered. *Lathyrus Aphaca.*

Vibu'rnum. Arrow-wood, Laurustinus. From *vieo*, to tie, because of the pliability of some of the branches. Nat. Ord. *Caprifoliaceæ.*

An extensive genus of ornamental shrubs, generally with terminal corymbs of white flowers. One of the best known species is

VIC

V. tinus, popularly known as Laurustinus, an evergreen bush or low shrub, with white flowers that are rose-colored in the bud. It is a desirable house plant (when it can be kept at a low temperature), as it is easy of cultivation and keeps in flower nearly the whole winter. It thrives finely in the Southern States, planted in the open border. *V. Lentago*, a native species, common from Maine to Georgia, is a very handsome, low-growing tree, and well worth a place on the lawn. Its rich green foliage and profusion of flowers in spring, and its numerous clusters of fruit and richly-colored foliage in autumn, enhance its value as an ornamental tree. This is commonly known as Sweet Viburnum or Sheep Berry. The Wayfaring Tree or Hobble-bush (*V. lantanoides*) is another interesting small tree; and *V. cotinifolium* is a beautiful species from Nepal. The most interesting kind of Viburnum grown in small gardens is, however, the Gueldres, or Guelder Rose, or Snowball Tree, *V. opulus.* This is a deciduous shrub, found in Europe and Asia, as well as plentifully in this country northward, and southward along the Alleghanies. The sterile variety of this species (var. *sterilis*, the Snowball Tree) may be found in every shrubbery, and, though so common, is still among the best of all shrubs. In a wild state its principal beauty lies in its bright red berries, which are edible, and are used as a substitute for Cranberries, whence its common name, Cranberry Tree. *V. plicatum*, from North China, is a most beautiful hardy species, and of better habit than the preceding. It is a dwarf-spreading bush, with deeply wrinkled foliage. In summer every branch is wreathed with clusters of snow-white, sterile flowers, larger and whiter than those of the common Snowball Tree. It likes a warm, sheltered situation, and is a shrub of the highest merit. Most of the Viburnums are hardy. They are generally propagated by layers, but cuttings will strike freely if kept moist, and in a shady situation. When transplanted, the evergreen species should be removed in October or November, as they have few fibrous roots, and are very apt to be killed by a continuance of dry weather if they are transplanted in spring.

Vi'cia. Vetch. Tare. From *vincio*, to bind together; referring to the clasping tendrils. Nat. Ord. *Leguminosæ.*

A very extensive genus of hardy climbing annuals and herbaceous climbing perennials. Some are common weeds, while others are grown for food for all kinds of cattle. *V. faba* (syn. *Faba vulgaris*), the English or Broad Windsor Bean, and more particularly its variety, *V. f. equina*, the Horse Bean, are largely grown in Europe for this purpose. They are mostly natives of Europe, a few species only being found in this country. The ornamental species are generally pretty climbing plants, with purplish flowers; some of the kinds, however, have white, some pink, others blue, and others pale yellow flowers. All the kinds grow freely, though they thrive best when the soil is deep and sandy. They are propagated by seeds or division of the roots.

Victo'ria. Named in honor of *Queen Victoria* of Great Britain. Nat. Ord. *Nymphæceæ.*

A magnificent genus of plants, consisting of one species, as some think, or three species,

according to others. Dr. Masters, in the "Treasury of Botany," speaking of these noble plants, says: "They are aquatic plants, with thick, fleshy root-stocks, marked with the scars of former leaves, and sending upward numerous long, cylindrical leaf-stalks, which are traversed in the interior by several air-canals, the larger of them arranged with much regularity, and are thickly covered on the outside by stout conical prickles. These prickles have spiral vessels and a small cavity in their interior, opening by a little pore at the top. From the under surface of the base of the leaf-stalks numerous adventitious roots are given out. The blade of the leaf is peltate, circular in outline, and when fully developed is from six to twelve feet in diameter, its margin uniformly turned upward to the extent of two or three inches, so that the leaves, when floating, have the appearance of so many large, shallow trays. The upper surface of the leaf is of a rich green color, and studded with little boss-like prominences. The lower surface is of a deep purple or violet hue, and traversed by several very prominent nerves, which radiate from the centre to the margin of the leaf, and are connected one with another by smaller nerves running transversely, so that the whole of the under surface is divided by compartments into a number of irregularly quadrangular spaces or cells. The nerves themselves are permeated by air canals, and covered by strong spines. Thus the enormous leaves are well adapted to float on the water: and the extent of surface exposed is so great that a considerable weight can be supported without submerging them. Even a child of twelve years of age may be borne up, if the precaution be taken of first placing on the leaf a small piece of board, to prevent the feet from tearing and slipping through its surface. The flower-stalk has a similar outward appearance to that of the leaf, but is stouter, and its air-canals are arranged in a different manner. The flower bud before expansion is pear-shaped. The calyx is adherent below to the ovary, and is here covered with prickles; its limb, however, is destitute of these appendages, and is divided into four ovate deciduous sepals, of a rich purple tint externally, and whitish internally. The petals are very numerous, in several rows, and (as in our common Water Lily) exhibit a gradual transition in their form to that of the stamens, so that it is somewhat difficult in all cases to decide where the one set of parts ceases and the others begin. The outer petals are rather larger than the sepals or lobes of the calyx, oblong, concave and white, the inner ones gradually becoming narrower, more pointed, and of a beautiful deep rose color. When fully expanded the outer petals are bent downward, while the central rose-colored ones, with the stamens, remain erect; and thus a noble appearance is presented, as of a central rose-colored crown supported by a series of pure white and most gracefully curved petals. The stamens are numerous, the outer ones somewhat lance-shaped, gracefully curved, of a fine rose-color, and having two linear anther cells on the inner face, near, but not quite extending to the top. Within these fertile stamens are other sterile ones, smaller in size, less highly colored, arching over the stigmas, to which they approximate also in

color and form. The ovary is adherent to the calyx tube, somewhat globular or top-shaped, its upper portion hollowed like a cup, and presenting in the centre a little rounded or conical knob. Along the upper margin of the cup are placed the stigmas, fleshy, pointed bodies, somewhat flattened at the sides and bent in the middle, so that their points project over the cup toward the centre. Each stigma has a prominent line along its upper surface, running down to the central knob, which is thus the focus of a series of ridges, radiating toward the stigmas. The interior of the ovary contains numerous cavities corresponding to the stigmas, and each containing several ovules. The fruit, when ripe, is a sort of globular berry, thickly beset with formidable prickles. The seeds escape by the rotting of the outer portions of the fruit. These noble plants inhabit the tranquil rivers of South America, especially those which are tributary to the Amazon. They differ in the size of the seeds and other particulars; but when it is remembered how variable aquatic plants are, it is better, for the present at least, to consider them as forms of one rather than distinct species. Generically, *Victoria* is most nearly allied to *Euryale*, but it is distinguished by the deciduous sepals, by the gradual transition in the form of the petals to that of the stamens, by the more numerous cavities of the ovary, and other particulars. The leaf of *Euryale* is, however, an exact miniature copy of that of the *Victoria*, save that it is not turned up at the margin.

"The earliest traveler who discovered this plant was Hænke, in 1801. Bonpland subsequently met with it; but M. D'Orbigny was the first to send home specimens to Paris in 1828. They were, however, neglected or overlooked. In a work published some few years after this time, M. D'Orbigny mentions having discovered the plant in the River Parana in Guiana. It was known, he says, to the natives, by the name of *Irupé*, in allusion to the shape of the leaves, which resembles that of the broad dishes used in the country. The Spaniards call the plant Water Maize, as they collect the seeds and eat them roasted. In 1832 a German traveler found it in some tributaries of the Amazon; but it was not until the late Sir Robert Schomburgk discovered it in the Berbice River, in British Guiana, in the year 1837, that public attention was drawn to the magnificent plant." Sir Robert, in a letter to the Royal Geographical Society, thus describes his first sight of the plant: "It was on the first of January, 1837, while contending with the difficulties that nature interposed in different ways to hinder our progress up the River Berbice, that we arrived at a part where the river expanded and formed a currentless basin. Some object on the southern extremity of this basin attracted my attention, and I was unable to form an idea what it could be; but, animating the crew to increase the rate of their paddling, we soon came opposite the object which had raised my curiosity, and, behold, a vegetable wonder! All calamities were forgotten. I was a botanist, and felt myself rewarded! There were gigantic leaves, five to six feet across, flat, with broad brim, light green above and vivid crimson beneath, floating on the water; while in character with the wonderful foliage, I saw luxuriant flowers, each con-

sisting of numerous petals, passing in alternate tints from pure white to rose and pink. The smooth water was covered with the flowers; and as I rowed from one to the other I always found something new to admire." In 1845 Mr. Bridges, an English traveler, while riding along the River Yacouma, a tributary of the Mamore, came across a large colony of the *Victoria*, and succeeded in collecting a quantity of ripe seeds, which he took with him, soon thereafter, to England. Some of them he intrusted to Sir John Paxton at Chatsworth, who succeeded in producing the plant in November, 1849, and presented a flower to the Queen at Windsor Castle, where a brilliant assemblage met to admire the new and beautiful treasure.

It was first successfully grown and flowered in this country about 1852, by Mr. Caleb Cope, of Philadelphia, who built a house and tank expressly for its culture. Since then it has been flowered in many places, and is still one of the chief attractions during the summer season in the principal botanic gardens of Europe. Mr. Sturtevant, of Bordentown, New Jersey, has for several years flowered it with great success in the open air by treating it as a tender annual. The seeds are started in winter or early spring, in water kept at a uniform temperature of from eighty to ninety degrees. After germination they are potted and shifted on as they require it. Early in June they are planted out in a bed of very rich soil, in a tank fully exposed to the sun and which is artificially heated until hot weather sets in. It produces leaves six feet across, one plant covering a space thirty feet in diameter; the flowers are from twelve to sixteen inches across, and the first night they open they are of a lovely white, with a perfume resembling that of Pineapples, often perceptible at a distance of some rods. The second night the flowers have changed to pink and have lost their perfume. It may be grown with every chance of success in open ponds in the Southern States. In 1886 Mr. Sturtevant flowered, for the first time, a crimson-flowered *Victoria regia*, the chief difference of which from the type is its more robust habit and that the flowers, which are also white the first day, change on the second day to a deep crimson.

Victorian Dogwood. *Prostranthera lasianthos.*

Victorian Hazel. *Pomaderris apetala.*

Vieusseu'xia. Named in honor of *M. Vieusseux*, a Swiss botanist. Nat. Ord. *Iridaceæ.*

Small bulbs from the Cape of Good Hope, usually known as the *Peacock Iris*, on account of their very brilliant flowers, varying from white to crimson and purple. They are not hardy, but will grow well with partial protection, like most of the Cape bulbs. They are rapidly increased by offsets. Introduced in 1776. Syn. *Morœa.*

Vi'gna. In memory of *Dominic Vigni*, a commentator on Theophrastus, 1625. Nat. Ord. *Leguminosæ.*

A genus of about thirty species of trailing and climbing plants, allied to *Dolichos*, the principal distinction being the yellow flowers and cylindrical seed-pods, while the *Dolichos* has purple and white flowers, and flattened pods. The genus is chiefly South American; one or two species being found in the Southern States. Propagated by seeds.

Viguie'ra. Named after Alexander Viguier, of Montpellier, who wrote a work on Poppies, 1814. Nat. Ord. *Compositæ.*

A genus of annual or perennial herbs, rarely shrubs, natives of the warmer parts of America. They resemble the Helianthus, and only one or two are in cultivation. *Harpalium rigidum* is placed under this genus by some botanists.

Vi'lfa. Rush Grass. Name unexplained. Nat. Ord. *Graminaceæ.*

Under this genus Steudel describes one hundred and twenty-three species which have an extensive geographical range, from Mexico through the southern hemisphere to New Holland. Some of the annual species are pretty and are cultivated on that account.

Villare'sia. Named after *Matthias Villarez*, a Spanish botanist. Nat. Ord. *Olacaceæ.*

A genus of evergreen, climbing shrubs or trees, natives of tropical Australia, the Indian Archipelago, Brazil and Chili. *V. mucronata*, the only species yet introduced, forms a showy, evergreen, stove-house shrub, bearing white flowers in paniculate heads. It was introduced from Australia in 1879, and may be increased by cuttings or by seeds. Syn. *Citronella.*

Villa'rsia. Named in honor of *D. Villars*, a famous French botanist. Nat. Ord. *Gentianaceæ.*

A small genus of aquatic plants and herbaceous perennials. The flowers are in axillary clusters or terminal panicles, and mostly of a yellow color. *V. nymphæoides*, a native of England, and one of the finest species, is an aquatic of easy culture, and well adapted for the aquarium.

Villose. Villous. Shaggy; covered with soft, close, loose, long hair.

Vilmori'nia. Named after *P. L. Vilmorin*, a famous French cultivator, who wrote on Leguminous plants, 1825. Nat. Ord. *Leguminosæ.*

A small genus of erect, stove-house shrubs, natives of San Domingo. *V. multiflora*, the only introduced species, is sometimes found under the name of *Clitoria multiflora.*

Vimina'ria. Australian Rush Broom. Victorian Swamp Oak. From *vimen*, a twig; the appearance of the species is that of a bundle of twigs, being destitute of leaves. Nat. Ord. *Leguminosæ.*

V. denudata, the only described species, is a very interesting and curious plant, bearing small, orange-colored flowers in long terminal racemes. It is found generally in botanical collections, and is propagated by cuttings of the half-ripened shoots.

Vimineous. Having long, flexible shoots or twigs; like many Willows.

Vi'nca. Periwinkle. Creeping Myrtle. Probably from *vinculum*, a band; in allusion to the suitableness of the shoots for making bands. Nat. Ord. *Apocynaceæ.*

A well-known genus of hardy, herbaceous, evergreen, trailing plants, and green-house, low-growing, woody herbs. *V. major* and *V. minor* are respectively the Large-leaved Periwinkle and the Common Periwinkle, known in common cultivation as Myrtles. They are natives of Europe and have long been in cul-

tivation. They are much used in cemeteries for covering graves, the deep green of the leaves contrasting with the delicate blue flowers. There are varieties with gold and silver-edged leaves, not quite hardy in the Northern States, but considerably grown for basket plants and conservatory decoration. *V. rosea*, the Madagascar Periwinkle or Old Maid, is a beautiful green-house plant with rose-colored flowers. This species and its varieties, one with pure white flowers, the other white with a crimson eye, grow from twenty to thirty inches high, and are completely covered with flowers the entire summer. They do quite as well planted in the open border as when grown in the green-house. They were introduced from the East Indies in 1758, and are, consequently, tender, requiring nearly as high a temperature as Coleus or Bouvardia. These plants may be grown from cuttings or from seed, the latter being preferable. The seed should be sown in the hot-house or hot-bed about the first of January, in an average temperature of not less than 70°, and grown on in the same manner, and planted in the flower-garden at the same time as other tender-bedding plants. Planted eighteen inches apart each way, they completely cover the ground. Syn. *Catharanthus*.

Vinceto'xicum. From *vincere*, to conquer, and *toxicum*, poison; in allusion to supposed antidotal powers. Nat. Ord. *Asclepiadaceæ*.

A genus of erect or twining perennial herbs or sub-shrubs, natives of temperate and warm regions, but rare in the tropics. The cultivated varieties are all hardy, and are best known as *Cynanchum*.

Vine. Any trailing or climbing stem.
Alleghany. See *Adlumia cirrhosa*.
Australian. *Vitis hypoglauca* and *V. acetosa*.
Balloon. See *Cardiospermum*.
Condor. *Gonobolus Cundurango*.
Currant. *Vitis vinifera* var. *Corinthiaca*.
Cypress. See *Quamoclit vulgaris*.
Elephant's. *Cissus latifolia*.
Fragrant Wild. *Vitis riparia*.
Glory. The genus *Clianthus*.
Golden. *Stigmaphyllon ciliatum*.
Granadilla. *Passiflora quadrangularis*.
Grape. The varieties of *Vitis vinifera*, *V. Labrusca*, *V. vulpina*, etc.
Grape-flower. The genus *Wistaria*.
Hedge. *Clematis Vitalba* and *C. Virginiana*.
Kangaroo, or Kankuru. *Cissus Antartica*.
Madeira. *Boussingaultia Basseloides*.
Maple. *Menispermum Canadense*.
Matrimony. *Lycium vulgare*.
Milk. A name sometimes used for *Periploca græca*.
Of Sodom. Supposed to be the Colocynth, *Citrullus Colocynthus*.
Pepper. *Ampelopsis bipinnata*.
Pipe. *Aristolochia Sipho*.
Poison. *Rhus toxicodendron*.
Potato. A common name for *Ipomœa pandurata*.
Silk. *Periploca græca*.
Silver. A popular name for *Scindapsus argyræa*.
Silver of the West Indies. *Pothos argyræa*.
Smilax. See *Myrsiphyllum*.
Squaw. *Mitchella repens*.
Strainer. *Luffa acutangula*.
Variegated. *Vitis* (*Cissus*) *heterophilla variegata*.
Wild-wood. *Ampelopsis quinquefolia*.

Vinealis. Growing wild in vineyards.

Vinegar Tree. *Rhus tiphyna* and *Rhus glabra*.

Viola'ceæ. A natural order consisting of herbs and shrubs, usually with alternate and simple leaves, furnished with stipules and axillary flowers, either solitary or in cymes, racemes or panicles. The flowers are often large and showy, and the capsule of the greater number of genera opens in three very elastic valves. There are between two and three hundred species known, and over twenty genera dispersed over nearly all parts of the globe. Many of the species are well known in cultivation.

Violet. See *Viola*.
Adder's. *Goodyera pubescens*.
Bird's-foot. *Viola pedata*.
Bog. The genus *Pinguicula*.
Cape. *Ionidium Capense*.
Corn. *Specularia hybrida*.
Dame's. *Hesperis matronalis*.
Dog's-Tooth. *Erythronium Dens-canis*.
Dog's-Tooth. American. *Erythronium Americanum*.
False. *Dalibarda repens*.
Fringed. The genus *Thysanotus*.
Green. See *Solea*.
Mercury's. An old name for *Campanula Medium*.
Neapolitan. *Viola odorata* var. *pallida plena*.
New Holland. *Erpetion reniforme*.
Pyrenean. *Viola cornuta*.
Rouen. *Viola Rothomagensis*.
Russian. *Viola suavis*.
Siberian. *Viola uniflora*.
Spurless. The genus *Erpetion*.
Spurred. *Viola calcarata*.
Tooth. *Dentaria bulbifera*.
Water. *Hottonia palustris* and *H. inflata*.

Violet Wood or **Myall Wood**, of Australia. *Acacia homalophylla*.
Of Brazil. Supposed to be a species of *Triptolomœa*.
Of Guiana. *Andira violacea*.

Vio'la. Violet, Heart's-ease, Pansy. The old Latin name used by Virgil, etc., similar to the Greek *Ion*. Nat. Ord. *Violaceæ*.

This genus consists of more than one hundred and fifty species, indigenous in North America, Europe, Asia, China and Japan. Some of the species occupy a prominent position in the flower garden and the commercial green-house. The genus includes *V. odorata*, the well-known hardy English Violet, and its many varieties, so common in cultivation. This species, by common consent called English Violet, is indigenous throughout Europe, parts of Asia, China and Japan. It is unquestionably the Violet of the ancients, as it is correctly described by Dioscorides, who recommends it for its medicinal virtues, as well as for its fragrance and beauty. Of this species there are many varieties, and of these some are white, some blue, some purple, light and dark, and both single and double. The most interesting and the most generally cultivated are the Neapolitan and Russian Violets, and of each of these there are varieties with distinctive names. The Russian Violets are credited to the species *V. suavis* by some writers; Loudon, however, says they are varieties of *V. odorata*. Of the double kinds the Neapolitan (light blue), and Maria Louise

(dark blue), are the varieties most generally cultivated. Swanley White, and several other double white varieties, are also cultivated, and are prized more for their anomaly than for their intrinsic beauty. Mad. Millet, a double red or carmine-colored variety, is also grown to some extent, on account of its novel and unexpected color. Of the single sorts the Russian, Schönbrunn, and the Czar are the best. They are grown in frames and in green-houses with and without artificial heat. Formerly they were more grown in cold frames than in green-houses, but many of the growers have abandoned frames, and grow them in small houses, giving only sufficient heat to protect the plants from frost. Some grow them in pots, while others plant them out on the bench; each way has its earnest advocates, and either way will give good flowers, largely in proportion to the care given; and there is no plant grown that requires more, or will usually better repay that which is given. The essential in Violet culture is a strong calcareous soil, one that will retain moisture without becoming soddened; a low temperature (not to exceed 40° at night, or 60° during the day, ventilating whenever practicable) without bottom heat, the water applied without wetting the foliage, and the plants kept clean from decayed leaves and runners. With these attentions, failures in Violet culture will be rare, without them success will be equally rare. Of late years, in all sections of the country, the Violet has been subject to a disease, a spotting and yellowing of the leaves, which has been completely destructive in a great majority of cases. The cause of this I believe to be from the same source as that affecting the Rose, Carnation, and many other kinds of plants used for forcing in winter, namely, that the continued high temperature necessary to produce flowers is contrary to what the nature of these plants demands—a season of rest in winter; this being in part denied them, the plants are weakened in vitality and consequently become more or less a prey to disease. To avert that as much as possible, cuttings should be taken from the runners of the Violets in October, rooted and kept in cold frames over winter, which gives them the necessary season of rest, and planted out at one foot apart each way as soon as the ground is dry enough to work in spring; by midsummer they will have started to grow freely, from that time until the middle of September be careful that all runners are pinched off, so that the whole force of the root can be used to form the crowns for flowering, exactly as Strawberry runners are pinched off to produce fruit. The plants thus prepared for flowering about the end of September are dug up with balls and potted in seven or eight-inch pots, or planted in five or six inches of soil in the benches of the green-house at a foot apart. Shade and water for a few days until they have made young roots, after which give all the ventilation possible until November. The numerous beautiful varieties of "bedding Violets" so much used and admired in Britain, where they flower profusely all summer, originated in a cross between *Viola cornuta*, a native of Switzerland and the Pyrenees, and *V. pyrolæflora* (*lutea*), introduced from Patagonia in 1851. They are admirable plants for spring bedding, but, unfortunately, will not stand our hot, dry summers. American travelers in Europe import tens of thousands of these annually, only to be disappointed in finding that they are entirely unsuited to our hot, dry atmosphere. There are several of our native species worthy of cultivation in the border, particularly where there is considerable shade; the best of these is *Viola pedata*, or Bird's-foot Violet, a species that abounds in many parts of the country, but nowhere more plentifully than what is termed the Plains of Long Island, where, in early spring may be seen acres of ground completely covered with these mauve-colored flowers, sparingly mixed with its varieties, with pure white, and light blue with purple striped flowers. This species improves by cultivation, and can be removed from its native home without the slightest danger of failure. An important feature is that it will grow anywhere, in sun or shade, preferring a light sandy soil. In a favorable situation the flowers will be an inch across, and produced in such abundance as to completely cover the bed. Where they can be used as a border plant, they are very effective. The species of the greatest importance as a florist's or as a garden flower is *V. tricolor* (the Pansy or Heart's-ease, which see). All of the species are interesting, but are too numerous to be specially noticed.

Viper Gourd. A name given to *Trichosanthes anguina.*

Viper's Bugloss. See *Echium.*

Viper's Grass. See *Scorzonera.*

Virens. Green.

Virgatus. Twiggy; producing many weak branches, slender, straight and erect.

Virgil'ia. Lamarck dedicated this genus to the poet *Virgil*, whose "Georgics" contain many things interesting to botanists. Nat. Ord. *Leguminosæ.*

V. capensis, the only species introduced, is a green-house shrub with rosy-purple flowers, introduced from South Africa in 1767. It is seldom found in cultivation. The beautiful, hardy tree known in cultivation as *V. lutea* or Yellow-wood is now transferred to *Cladrastis* as *C. tinctoria*, which see.

Virginian Cowslip or Lungwort. The common name of *Mertensia Virginica*, sometimes called *Pulmonaria Virginica*, a rather pretty, herbaceous plant, occasionally grown in the ornamental border. See *Mertensia.*

Virginian Creeper. See *Ampelopsis quinquefolia.*

Virginian Date-Palm. *Diospyros Virginiana.*

Virginian Poke. *Phytolacca decandra.*

Virginian Silk. *Periploca græca.*

Virginian Snakeroot. *Aristolochia serpentaria.*

Virginian Spiderwort. *Tradescantia Virginica.*

Virginian Stock. See *Malcolmia.*

Virgin's Bower. See *Clematis Virginiana.*

Virgin Tree. *Sassafras Parthenoxylon.*

Viridis. Green.

Visca'ria. Rock Lychnis. From *viscus*, birdlime; in allusion to the glutinous stems of the species. Nat. Ord. *Caryophyllaceæ.*

These are handsome, hardy annuals, particularly *V. oculata*, whose pretty pink and

purple flowers are very pleasing. They make the best appearance when sown in masses, which may be done in April and May, to afford a display through the whole of the summer months. Many of the plants of this genus are now included in *Lychnis*, which see.

Viscid, Viscous. Clammy; sticky from a tenacious coating or secretion.

Vi'scum. Mistletoe. From *viscus*, bird-lime; on account of the sticky nature of the berries. Nat. Ord. *Loranthaceæ*.

We copy from Mrs. Loudon's "Gardening for Ladies" a description of *V. album:* "This curious parasite can hardly be called ornamental, though it may be sometimes introduced with effect to give an air of antiquity to newly-planted pleasure-grounds. It grows best on old cankered Apple Trees, but it may be made to take root on even a young tree, by pressing a berry on a crack in the bark, and then tying oiled paper over it. As, however, the male and female flowers of the Mistletoe are on separate plants, the berries are not always fertile. It is an error to suppose that the Mistletoe grows generally on the Oak, as it is extremely rare on that tree in England. 'Dr. Bull, in a paper in the "Journal of Botany" (ii. 73), mentions only seven authentic instances of the growth of the Mistletoe on the Oak in this country' —Dr. Masters. It is found most commonly on the Apple and next on the Hawthorn; it is also found on the Lime, the Sycamore, the Willow, the Poplar and the Ash, occasionally on the Cherry and sometimes, though rarely, on Pines and Firs. When the seeds begin to grow, they send out first one or two roots, which ascend for a short time and then turn back to the bark, on which they fix themselves, like the sucker of an insect. The other end afterward detaches itself from the tree and becomes leaves and shoots. The roots of the Mistletoe descend between the bark and the young wood, and no intimate union takes place between the old wood of the parasite and its supporter. The wood of the Mistletoe is of a very fine pale yellowish tinge, and it is as hard and of as fine a grain as box, which it greatly resembles, while that of the thorn is dark brown." The never-lessening demand for the Mistletoe for use at the Christmas Holidays in England has of late years induced nurserymen to begin its cultivation on the Apple, which is now done to an extent that keeps the "boughs" at a reasonable rate. The English steamers often bring over a supply for Christmas in New York, but we have never seen it arrive in perfection, the berries, the chief attraction of the plant, having mostly dropped off. The American Mistletoe, or False Mistletoe, is *Phoradendron flavescens*, common in New Jersey, southward and westward, where it has in many instances proved destructive to the forest trees upon which it fastens itself. Though not so ornamental as the English Mistletoe, it is now used in large quantities during the holidays as a substitute for it. See *Phoradendron*, page 319.

Vi'smia. Wax-Tree. Named in honor of *M. de Visme*, a merchant of Lisbon. Nat. Ord. *Hypericaceæ*.

A genus of trees or shrubs, found principally in tropical America, only four of the species being found in western tropical Africa. They have four-sided branches, opposite, often glandular, dotted, entire leaves, and terminal panicles, or cymes of yellow or greenish flowers. *V. Guianensis*, a species found in Guiana, Brazil, Surinam and Mexico, furnishes the rosin known as American Gamboge or Gutta-Gum.

Vi'snea. Named after a Lisbon merchant named *Visne*, who was interested in botany. Nat. Ord. *Ternstromiaceæ*.

V. Mocanera, the only recognized species (so named by Linnæus on account of the fruit being supposed by some authors to have been the Mocan, which was made into a kind of syrup and largely employed by the aboriginal inhabitants of the Canary Islands), is a greenhouse shrub with the habit and inflorescence of *Eurya*. It was introduced to cultivation in 1815, and is propagated by cuttings.

Vita'ceæ. A small natural order, nearly allied to *Rhamnaceæ*, differing slightly in their flowers, but more in their habits. With the exception of the small genus *Leea*, they are tall climbers, remarkable for the anomalous structure of their wood. Besides the great genus *Vitis*, this order includes *Cissus*, *Ampelopsis*, *Pterisanthes* and *Leea*.

Vitellinus. Dull yellow, just turning to red; the color of the yolk of an egg.

Vi'tex. From *vieo*, to bind; in allusion to the flexible branches. Nat. Ord. *Verbenaceæ*.

A genus of about sixty species of woody plants, mostly tropical, a few reaching as far north as the Mediterranean. The plants of this genus are very aromatic, and the leaves and bark of some of the species are used medicinally in India. *V. Agnus-castus*, Chaste-tree, with long, petiolate, divided leaves and pale lilac flowers, is perhaps the best known species, having been in cultivation since 1670. It is hardy in the Southern States. *V. trifoliata*, the Indian Wild Pepper, introduced from India in 1739, is also in cultivation. They are easily increased by cuttings.

Vi'tis. Vine. From the Celtic *gwid*, pronounced vid; signifying the best of trees. Wine is derived from the Celtic word *gwin*. Nat. Ord. *Vitaceæ*.

A large genus comprising over two hundred species of climbing plants, of which the well-known Grape-vine is the most important representative. It has a wide geographical range, but is principally found in the northern hemisphere, the majority of its species being natives of tropical and temperate Asia to as far north as Japan and North America. "The Grape-vine, *V. vinifera*, is a native of the southern shores of the Caspian Sea and Armenia. Associated with the Fig, it follows the shores of the Black Sea as far as the Crimea. Alphonse de Candolle states that it grows spontaneously throughout the lower region of the Caucasus; in the north, but more especially in the southern parts of that chain; in Armenia, and on the southern shores of the Caspian Sea, and he adds: 'There can be no doubt from historical testimony and that of botanists that this was the original country of the Vine. But no species of Vitis is wild in Europe.'"—Treasury of Botany.

VIT

Although the hardy varieties of Grapes do well in nearly all parts of the country, there are few sections, with the exception of California, where the European or foreign Vine does well in the open air. For this reason, the only certain method of obtaining these fine varieties in perfection is by the use of the Cold Grapery. There is no addition to a country home from which such a large amount of satisfaction can be obtained at so small an outlay as from a Grapery for growing the different varieties of foreign Grapes. As this fruit can be obtained at a trifling original outlay, and with but little attention in the cultivation afterward, we will briefly describe the methods in use here, which are much simpler than those in Europe, from our having brighter sunshine during the summer months. As to the size and construction of the Vinery, there are now architects in every large city competent to give plans. For early forcing, or perhaps in all Graperies where artificial heat is used, the "lean to," as it is called, is preferable facing south or southeast, and wherever there is building, wall or perpendicular rock, this style can be constructed very cheaply; the two-third span green-house (now considered the best model for rose-forcing) is more sightly and will answer equally well; while for Cold Graperies, or those not heated artificially, the curvilinear or span-roofed is the best. The "lean to" or "two-third span" may be eighteen or twenty feet wide and of any desired length, giving a length of rafter of from twenty to twenty-four feet. The general width for a "curvilinear" house is twenty-five feet, giving about fifteen feet of a rafter on each side.

The formation of the border in which the Vines are to be planted is a matter of the first importance; for if that has been improperly made, all else, no matter how well done, will fail to accomplish good results. The outside border for the Grapery (and for Cold Graperies that is all that is required) need not be more than one and a half feet in depth; and the width, to begin with, need not be more than ten feet, though twenty feet are none too much for the necessities of the roots when the Vines have attained two or three years' growth, so that it is just as well, when time will permit, to make the border of its full width at once. In forming the border the natural ground should be excavated to the required depth of eighteen inches, the bottom having a fall of at least half an inch to the foot from the front wall of the Grapery to the extremity of the border, where a drain of sufficient capacity must be made to rapidly carry off the water. In our own practice we prefer to cover the bottom over with an inch or two of cement, to prevent the roots penetrating into the cold subsoil; though, if the subsoil is of sand or gravel, there is no particular necessity for this. An excellent compost for the formation of the Vine border is made by using say nine parts of sod taken from the surface of any good pasture land; if the soil be heavy, however, it should be liberally mixed with lime rubbish, brick-bats, or any material of that nature, so that it does not become too heavy and sodden. To nine parts of such compost one-tenth part of broken bones should be thoroughly mixed through it. When filling the excavation, at least five inches should be allowed for settling; so that, if the excavation is eighteen inches deep, the compost should be filled in to a depth of twenty-two or twenty-three inches.

VIT

Amateurs planting Graperies commonly desire to start with Vines that are two or three years' old, but such as have had much experience with stocking new Graperies, know that a one-year-old Vine that is well ripened, better answers the purpose than those of greater age; in fact, it is a question whether a Vine started from an eye in February or March, and planted in June, will not by September make as fine a cane as one of any greater age. As such Vines are not very easily transportable or even procurable at all by beginners, the best thing they can do is to procure well-grown one-year-old Vines and plant them in spring, but not too early—say May in this latitude, or just when their buds are beginning to start if kept, as they should have been, in a cool place. It is best to shake the soil from the ball of the young Vines that have been grown in pots, although the disentanglement or spreading of the roots, to which so much importance is by some attached, is of no consequence. In planting, the roots are set outside, drawing the tops through the apertures formed in the wall, a little higher than the border (if there is one) inside the house.

Only a single shoot is allowed to grow, and this is cut back in November or December to the bottom of the rafter, or about three or four feet from the ground. If desirable, a bunch or two may be taken from each of the Vines the second year, although it will somewhat weaken them to do so. It is therefore preferable to repeat the same operation of growing one shoot only again to the top of the rafter. This shoot may now be cut back to say eight feet from the ground, and will this year (the third after planting) give a good crop, which is taken from the lateral or side shoots, still allowing the main or leading shoot, as before, to get to the top of the rafter; for the Vine is not strong enough yet to bear fruit the whole length of the cane. The fourth year after planting it may be cut back to within five or six feet of the top, and the fifth year will be able to bear a full crop the entire length of the rafter, which, in a house of twenty-five feet, span-roofed, will be about sixteen feet long, or in a lean-to of twenty feet wide, about twenty-five feet. The variety best fitted for the Cold Grapery is the Black Hamburg. In a house requiring twenty Vines we should advise twelve Black Hamburg, and the balance selected from the following list of old and established kinds: Royal Muscadine, Buckland's Sweet-Water, White Frontignan, Trentham Black and Charlesworth Tokay.

Protecting the Vines in Cold Graperies is of great benefit. About the simplest way to do so is to run a board along eighteen inches or so from the front wall. After pruning the Vines (which may be done at any time after they drop their leaves), they are to be taken down from the wires and laid down between this boarding and the front wall, and the space entirely filled up with soil or sand. It is necessary, though, to watch that ground mice do not get to the Vines, as they might destroy them by eating the

bark. We have found that Vines so covered up keep admirably, and that the plan is less liable to draw vermin than when they are covered with straw or hay. They are usually covered up about the middle of December, and are not uncovered or otherwise disturbed until the first of May, when they are lifted up and tied to the wires, which are one-sixteenth galvanized iron, and run across the rafters fifteen inches apart and fifteen inches from the glass. The training followed is what is called the "spur" system, which is simply to allow one cane or shoot to each Vine (planted three or four feet apart) and pruning the side-shoots or "bearing-wood" annually back to one eye. In the summer treatment of the Cold Grapery the principle must never be lost sight of that to keep the Vines in perfect health, a temperature of not less than 65° at night, with 15° or 20° higher during the day, is always necessary. Any rapid variation downward is certain to result in mildew. The floor of the Grapery should be kept sprinkled with water at all times, unless in damp weather, from the time the buds start until the fruit begins to ripen, except during the period the Vines are in flower, when it should be dispensed with until the fruit is set. In dry weather, copious watering is necessary for the border outside. The summer pruning of the Grapery consists simply in cutting off the laterals, or side-shoots which start from where the leaf joins the stem, to one leaf. In winter, three or four inches of well-rotted stable manure is spread over the border, and over that six inches of leaves or litter; this is raked off in spring, and the manure forked in, the object being to feed the roots from the top of the border. We are so much impressed with the advantage of covering up the Vines, both tops and roots, that we practice it even with the hardy varieties out of doors, with the very best results, having found, by actual experiment, that when covered up they are less subject to mildew. All plants of a half-hardy character may be kept in the Cold Grapery, such as Roses, Pomegranates, Oranges, Crape Myrtles, Pampas Grass, Tritomas, Carnations, etc., care being taken that the pots or tubs in which they are planted are plunged in leaves, tan, or some such substance, so that the roots do not freeze. The Cold Grapery makes an excellent poultry-house in winter, only, if put to that use, care must be taken that the buried Vines are secure against the scratching of the hens.

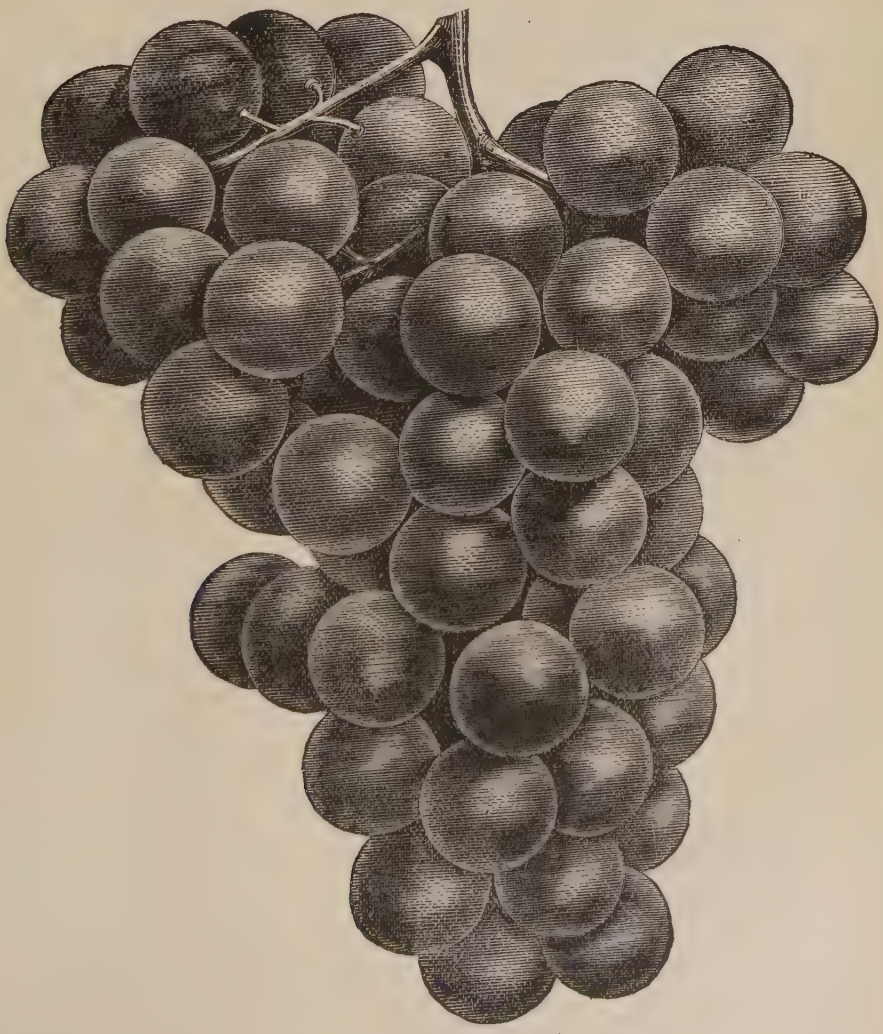
In the construction of the Grapery for forcing by artificial heat, the best plan is the "lean-to" style, previously described. This should face the south, or southeast, so that it will get all the sunlight possible in the winter and spring months, for forcing is often begun in December and January, so as to have the fruit ripe in April and May. A skillful grower will usually ripen his crops in four months or a little more, but not all kinds alike, as some naturally ripen earlier than others with precisely the same treatment. In forcing Grapes, it is essential to have the border outside covered up with leaves or manure of sufficient depth to prevent the frost getting to the roots; as, if heat is applied inside to the Vines while the roots are frozen, it will injure them seriously. When Vines are started to force very early, say January 1st, sufficient covering of manure and leaves should be

placed on the border to raise the temperature of the soil to at least 60°, if the best results are to be obtained. If started five or six weeks later, so much covering would not be necessary. No matter at what season the Grapery is started, the temperature to begin with, say for the first three weeks, should not exceed fifty degrees at night, with the usual day temperature of 10° to 15° higher, increasing gradually until the buds begin to be developed, which will be from five to six weeks, to a temperature of 65° at night, with 15° higher in the daytime. In another four or five weeks the fruit will be set, when the temperature may run from 70° to 75° at night, with the 10° to 15° higher during the day. When the berries are about the size of small peas, it is indispensable to thin nearly half of them out with the Grape scissors, else they will not attain half their size, and the bunches will be so compact that it will be impossible to detach the berries without mashing them. Inexperienced Grape-growers almost invariably err in leaving the berries too thick on the bunch, and often, also, too many bunches on the Vines, which not only results in the fruit being inferior in quality, but no more weight even is obtained. In regard to kinds to plant, we should here, as in the Cold Grapery, choose a large proportion of the Black Hamburgh, next the Muscat of Alexandria, Maddresfield Court Muscat, and then Trentham Black, Muscat Hamburg, Golden Champion, Gros Colman, Barbarossa and Lady Downes' for late, Chasselas de Fountainbleau for early, Grizzly Frontignan, Alicante, and similar good kinds. For market, Black Hamburgh and Muscat of Alexandria are found to be the most profitable.

If proper attention has been given in forcing the Grapery to the right degrees of temperature and moisture, there should be no mildew; but as a preventive in case of accidents, it is safest, as soon as firing begins, to paint the hot-water pipes with a mixture of lime, or linseed oil and sulphur. The pipes, when heated, evaporate the sulphur fumes, which are certain to destroy the germs of mildew, and also Red Spider, which sometimes infests vineries kept at a high temperature. (See Insects.) Accidents often occur by leaving the water in the pipes in the Graperies at the season they are resting and exposed to frost, which is often severe enough to freeze the water, which, expanding, bursts the pipes. It is always safest not to wait until fall to empty them, but to do so as soon as firing is stopped in the spring and summer. It is often customary, after pruning the Vines, to peel the loose bark from the canes and wash them with a mixture of sulphur and lime, to destroy insects; but there is no necessity for this, in our opinion, if the practice of burying up the stems in the soil is resorted to, as described in our instructions for the Cold Grapery. We have resorted to this practice for many years, and though we have never either peeled off the rough bark or washed them, we have never been troubled with insects of any kind.

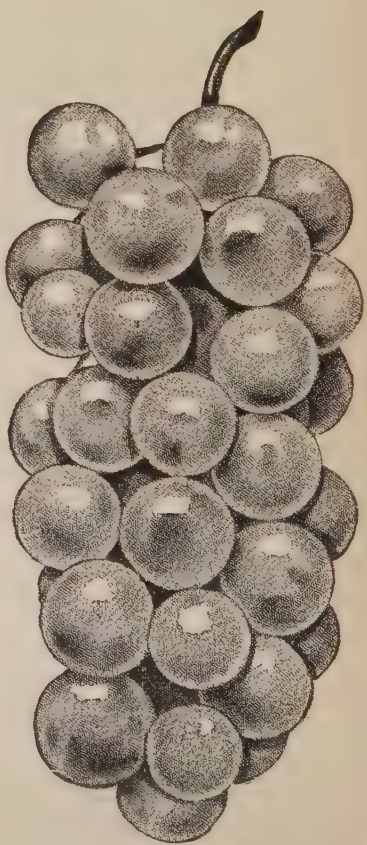
Vitis labrusca and *V. vulpina*, the wild Grapes of our own country, are quite distinct species from the wine Grape of Europe, being usually much stronger in their growth with larger and more leathery foliage, and, in their native state, with a peculiar foxy odor or flavor and more or less hardness of pulp.

VITIS (NIAGARA GRAPE).



VITIS (BRIGHTON GRAPE).

VITIS (MOORE'S EARLY GRAPE).



VITIS (WYOMING RED GRAPE).

These traits are rapidly disappearing under cultivation, and now the better varieties of the native Grapes are among the most valuable of our fruits, and the vineyard culture of the Grape is fast assuming a chief place among the industrial interests of the country, not alone for food, but for wine. Just now the subject of wine has a peculiar significance for the American vineyardist. The Phylloxera having destroyed in some cases, and materially injured in others, some of the most noted vineyards in Europe, especially in France, real wine has become rare, except in some old cellars, where it has been stored for years. To keep up the supply resort has been had to fictitious wines of all descriptions, and adulterations of a very hurtful nature have been practiced to such an extent that the French government has lately interfered to prevent it as far as possible. If the American vineyardist shall now step forward and supply the home market with *pure, high class* wines, he will not only be able to retain it, but also find a foreign market for all not wanted at home. The Grape should be regarded as an article of food rather than a luxury, and it is becoming more and more regarded in that light; and there need be no fear, with our rapidly increasing population, that the demand will not always be in advance of the supply. That many portions of the country are suited to the successful culture of the Grape is abundantly shown by the vineyards already established; in fact, there are but few States in the Union where some one variety of the Grape may not be profitably grown, and even unfavorable localities may often be made to yield a supply for the family, by affording the vines a little protection above ground and proper drainage beneath.

The following general directions may be of service to many: For more detailed instructions we would refer to Downing's Fruits and Fruit Trees of America, or to the excellent works of Fuller or Hussman on this subject. Grapes can be grown in any soil provided it is well drained and in good condition. For a vineyard a strong, loamy or gravelly soil is preferable, and a warm, sunny, open exposure is indispensable. One or two years' old Vines are the most satisfactory and may be planted in rows six to eight feet apart and four to eight feet in the row according to the habit of the Vine, whether it is a vigorous grower like the Concord, or a short-jointed grower like the Delaware. When planted they should be cut back, leaving only two or three eyes or buds. For vineyard culture the long, renewal system is most practiced; by it the Vine the first year is permitted to make but one leading shoot, all the other buds or eyes being rubbed off leaving only the strongest, which should be trained perpendicularly to a stake the first year. The second year this cane is cut down again to two eyes, and these are grown to two long canes. The third year one of these canes is cut down to two buds and the other to four buds, the former being permitted to make two good long, stout, canes and the latter to produce about four or six clusters of fruit, all the ground shoots being rubbed away. These two canes are allowed to grow as long as they will and are trained upright, the other on which the fruit

is grown is trained at an angle of about forty-five degrees, and when it has set its fruit is stopped back by pinching three or four leaves beyond the fruit. The following season or fourth year, the fruiting cane of this year is cut down to two buds and the two canes of this year's growth are cut to four or more buds for fruit bearing and trained at an angle of forty-five degrees each way, the two buds on the bearing cane of last year make canes for the succeeding year's bearing.

In the garden culture of the Grape it is just as necessary to secure a perfectly open, sunny exposure, for although it will make vigorous growths in the shade of trees or buildings, yet the crop will be poor and flavorless and the Vines likely to fall a prey to mildew. The system of pruning and training pursued in the garden is the upright or spur method. The first season's growth is cut back to two buds and the following season the two shoots produced are brought down to a horizontal position and fastened each way to the lower horizontal rail of the trellis, being shortened at the distance of three or four feet from the root. These will form the base from which to start the upright shoots, which form the permanent fruiting canes, and should be from fifteen to eighteen inches apart. The following season a crop of lateral shoots will be produced from the upright leaders which may be allowed to bear from one to three bunches upon each. Afterwards it is only necessary at the pruning season to cut back these lateral shoots or fruit-spurs an inch or so long and a new fruit-producing lateral will annually supply its place, to be again cut out at the winter's pruning. Though this system gives the largest crops and is the most generally practiced, it is nevertheless certain, that the renewal system always yields the largest and finest fruit. If the vine is *fully exposed to the sun* it will require very little summer pruning; in fact none, except stopping the young shoots three joints beyond the furthest bunch of Grapes at midsummer, for the leaves being intended by Nature to elaborate the sap the more we can retain of them, the larger and higher-flavored will be the fruit; careful experiments having proved that there is no more successful mode of impoverishing the crop of fruit than that of pulling off the leaves.

Although Grape-vines are hardy in nearly all sections, yet in any locality where the thermometer falls to zero it is beneficial to lay them down close to the ground, and cover them up with rough litter before the approach of severe weather in winter, allowing it to remain on in spring until the buds begin to swell, when the Vines are uncovered and tied up to the trellis or stake. If covered in this way they should be pruned before being laid down. Pruning may be done at any time from November to March. It is a common belief that Grape-vines should be pruned only at certain seasons. The weather must not be too cold, otherwise it is supposed they may be injured if then pruned. Again, they must not be pruned late in the spring, else the sap oozing from the cuts may bleed them to death. Let me say that both these notions are utter nonsense. The pruning of any tree or vine in the coldest weather cannot possibly injure it, and the "bleeding" or running of

the sap after any ordinary pruning can no more hurt the Vine than the blood flowing from a pin scratch would weaken a healthy man. This method of covering up the Grape-vine is not commonly practiced, but we are satisfied that in exposed positions it is well worth the trouble. I have practiced it with Vines now over twenty years old, embracing some twenty varieties. My soil is a stiff clay, very unsuitable for the Grape; yet these Vines have kept clear of mildew when my neighbor's Vines, a few hundred yards off, have been seriously injured by it. I have long believed that intense cold is hurtful to even such plants as we call hardy, but the wonderful vigor of these old Vines seems good evidence of the advantage of our method of treatment. The litter used in covering (which has become well rotted by spring) is spread over the border, acting both as a summer mulch and fertilizer.

DISEASES. The Mildew and Black Rot are diseases which most affect the success of grape culture in this country. For the former sulphur is the best remedy, applied while the leaves are wet. On a large scale it is applied by a bellows made for the purpose. Experiments made during the past few years with preparations of copper-sulphate for the prevention of Mildew have seemed to indicate that these mixtures were also antidotes for Black Rot. The preparation considered the best is what is known as the Bordeaux mixture. (See Insecticides.) This mixture should be sprayed on the vines at intervals of ten days to two weeks during the summer. This can be done with any of the force-pumps with a nozzle that delivers the liquid in the form of mist. Many enclose the best clusters of all their grapes in paper bags to preserve them from the spores of the Black Rot, and state that it is very efficacious. These spores are invisible to the naked eye, but they float about in the air, and lodging on the skin of the grape, are ready to germinate under favorable conditions of moisture and temperature. To prevent their coming in contact with the grapes, the clusters are enclosed in paper bags, the mouth reaching over the cane, folded and secured with a pin. This method also secures the fruit from the attacks of bees, wasps, etc., which are often very destructive.

VARIETIES. There are so many really good varieties now in cultivation, many of them succeeding better in some localities than in others, that it is difficult to make a selection of a few of the *best* sorts. For hardiness, delicious flavor and size of fruit we consider the following the best in their respective colors. (For description see nursery catalogues.)

WHITE. Niagara, Moore's Diamond, Salem, Martha and Duchess. RED.—Brighton, Delaware, Agawam (Rodgers' No. 15) and Wyoming Red. BLACK.—Worden, Moore's Early, Concord, Merrimac and Wilder (Rodgers' No. 9).

The varieties named in this list have been selected with a view to have fruit in succession from August to October, and, besides, to have a selection of such colors as will be most desirable when dished on the table, which, in the great variety of shades which we now have in this delicious fruit, makes a most beautiful ornament.

Propagation of the Grape is done by nurserymen in green-houses similar to that used for propagating florists' plants; but most of the varieties can be grown with fair success by cuttings in the open air. The cuttings (made from the young, well-ripened shoots of the previous year's growth) may be made with two or three buds or eyes, planted in rows, say one foot apart and three inches between the cuttings, and set so that the top eye or bud only is above ground. The situation where the cuttings are placed should be well exposed to the sun, the soil rich and deep, and of sandy or light character. Care must be taken that the cutting is well firmed in the soil; and if sawdust or some other non-conducting material is sifted over them (covering all up but the buds), success will be greater, as this will prevent the sun from baking and drying up the soil. The cuttings may be made from the prunings at any time during winter, and kept in a damp cellar or buried outside in sand until planted in the cutting-bed in the spring.

Vitta. Vittæ. The oil tubes of the fruit of the *Umbelliferæ*.

Vitta'ria. From *vitta*, a riband; alluding to the narrow fronds. A genus of tropical Ferns having grass-like subcoriaceous fronds with free veins. They are very interesting plants, though not of much significance except in a botanical collection.

Vittate. Striped length-wise.

Vivia'na. Named in honor of *Domenico Viviana*, a professor and botanist of Genoa. Nat. Ord. *Geraniaceæ*.

A genus of undershrubs and herbs, natives of South America. They have opposite ovate leaves, covered with white down on the under surface, and bearing white, pink or purple flowers in terminal panicles. They are pretty green-house plants but are not often seen in cultivation.

Viviparous. Bearing young plants in the place of flowers or seeds.

Vochy'sia. *Vochy* is the Guiana name of *V. Guianensis*; sometimes spelled *Vochisia*. Nat. Ord. *Vochysiaceæ*.

A genus of generally tall trees, natives of Brazil, Guiana, Eastern Peru and New Grenada, the flowers of which are arranged in highly ornamental panicles and are generally of a yellow or bright orange color. When in bloom they present a magnificent spectacle, accompanied by a penetrating, often violet-like odor. *V. Guianensis* and *V. tomentosa* are in cultivation and are increased by cuttings of the ripened wood.

Vochysia'ceæ. (*Vochyaceæ.*) A small natural order of trees or climbing shrubs, often of great beauty, with opposite, entire leaves, and yellow, white, pink or purple flowers (usually very showy) in terminal racemes or panicles. Little is known of the properties of these trees, beyond the hardness of the timber which some of them supply, and the position of the order in the Natural system is as yet unsettled.

Volkame'ria. Named for *J. G. Volkamer*, a German botanist. Nat. Ord. *Verbenaceæ*.

This genus is closely allied to *Clerodendron*, but is botanically distinguished from it. The

two best authenticated species are *V. aculeata* and *V. Acerbiana* from Nubia. They succeed well in a compost of sandy loam and leaf mould, and are increased by cuttings. Syn. *Clerodendron*.

Volubilis. Twisting or twining round some other body.

Volute. Rolled up in any way.

Voy'ria. From *Voyra*, the name of a species in Guiana. Nat. Ord. *Gentianaceæ*.

A genus of tropical American plants connecting *Gentianaceæ* with *Orobanchaceæ*, inasmuch as the species are parasitical on the trunks of old trees, and have only minute, scale-like leaves. The tuberous roots of *V. rosea* are of a reddish color externally and white within, they are baked and eaten in Guiana like Potatoes.

Vrie'sia. Named in honor of *Dr. W. de Vriese*, Professor of Botany at Amsterdam, Holland. Nat. Ord. *Bromeliaceæ*.

This genus is the most remarkable of the Natural Order to which it belongs. There are but few species, the most interesting being *V. speciosa* (syn. *Tillandsia splendens*), a native of Brazil. The beauty of this species consists in the tall spike of brilliant scarlet bracts, from which the flowers are produced. The flowers are yellow and quite transient, but the rich color of the bracts continues a long time. The plant has the general appearance of the *Billbergia*, and requires the same treatment. Introduced in 1844. This genus is now included under Tillandsia by some authors.

Vulnerary. Useful in the cure of wounds.

Vulviform. Like a cleft, with projecting edges.

W.

Waahoo or Burning Bush. *Euonymus atropurpureus.*

Wachendo'rfia. Named in honor of *J. E. Wachendorf*, a Dutch botanist. Nat. Ord. *Hæmodoraceæ*.

A small genus of Cape plants, usually offered in seedsmen's catalogues as bulbs, more from their Ixia-like flowers than the shape of their roots. They all have rhizomes or underground stems, in the scales of which buds, like little bulbs, form, by which, when detached, some of the species are propagated. The flowers are yellow or violet, scattered on slender scapes about a foot high. The species are nearly evergreen, but not hardy. They should be grown in pots, which should be large for the size of the plant, and allowed a partial rest soon after flowering, which is in midsummer. Introduced in 1770. Syn. *Pedilonia*.

Wahlenbe'rgia. Named in honor of *Dr. George Wahlenberg*, author of "Flora Lapponica," etc. Nat. Ord. *Campanulaceæ*.

This genus consists of hardy annuals and perennials, with a few tender annuals. They are mostly natives of the Cape of Good Hope. Like the whole of the order, these are very pretty plants. The herbaceous perennial species, one of the best of which is *W. grandiflora*, of which there are white and blue varieties, are very handsome. Seed sown in June will give fine flowering plants the next season. The annuals should be raised in heat in the spring, and planted out when danger from frost is passed. Introduced in 1816.

Wai'tzia. In honor of *F. A. C. Waitz*, an Eastern traveler. Nat. Ord. *Compositæ*.

A genus of showy "everlasting flowers," all of which are half-hardy, growing from one to two feet high, and bearing beautiful pink or yellow flowers. Natives of Australia, and requiring a warm soil and situation for their perfect development.

Wake Robin. A common name for *Trillium cernuum*, also for *Arum maculatum*.

Waldstei'nia. Named in honor of *Count von Waldstein*, a German botanist and author. A small genus of *Rosaceæ*, comprised of four species of hardy, creeping, perennial plants, with the aspect of some of the Potentillas. The leaves are palmately divided, and the flowers yellow in terminal corymbs. They are natives of central and eastern Europe, northern Asia and America, and are rather pretty plants, thriving in ordinary soil. *W. fragarioides* (Barren Strawberry) is common on the Alleghanies. Syns. *Dalibarda* and *Comaropsis*.

Walking-Fern. A name sometimes given to *Lycopodium alopecuroides*.

Walking-Leaf or Walking-Fern. A common name for *Camptosorus rhizophyllus*.

Walks. It was Downing, we believe, who laid down the common-sense rule, that in the laying out of walks or drives in the garden or pleasure-ground, there "never should be any deviation from a straight line unless for some real or apparent cause." So, if curved lines are desired, trees, rock, buildings or mounds must be placed at the bend or curve, as a reason for going round such obstacles. If any one doubts the necessity for this rule, let him observe the effect produced on level ground, where a line runs in corkscrew fashion, as is sometimes seen in the space between the house and the street. The absurdity is apparent, for no matter what leisure one may have, to be compelled to go a roundabout way to reach a point where there is no apparent reason or necessity for it, is certain to grate on the senses; yet ridiculous as this is, such cases are by no means rare, as there is a prevailing notion that such walks or drives must be curved lines (the curve being the line of beauty), whether the necessities, natural or artificially formed for such lines, are present or not. Often the formation of new grounds is totally ruined in this way. The proprietor, entirely ignorant of what is wanted, places himself in the hands of some ignorant gardener, who pretends to a knowledge of what

strictly belongs to the trained landscape engineer. As well might he expect the average bricklayer, working for two or three dollars per day, to plan and supervise the erection of his dwelling-house as the average gardener, to whom he pays $50 or $60 a month, to lay out his carriage drives and lawn; for the one is oftentimes equally as much a matter of taste and skill as the other. In suburban residences, where the house is not more than a hundred feet or so from the street, a drive is best made by having an entrance at each side of the lot, so that the carriage can enter at one gate and go out at the other, presuming that the width of the ground is 500 feet, and the distance from the street to the front door is 150 feet. Then the foot-walk should be in a straight line direct from the street to the front door. The width of the roads or walks must be governed by the extent of the grounds. For the carriage-way the width should not be less than ten feet, and for foot-walks five feet. Often gardens of considerable pretensions have the walks not more than three feet wide, where it is utterly impossible for two persons to walk abreast without getting their dresses torn or faces scratched by overhanging branches. Of course, it is another matter when the garden plot is limited to the width of a city lot (25 or 50 feet), then such economy of space is perfectly excusable. The character of the soil must in a great measure determine the manner of making the walk or road. Every one must have noticed that, after a heavy rain, unpaved streets in some districts remain next to impassible for many hours, while in others, after the same amount of rainfall, they are comparatively dry. This is entirely due to the nature of the subsoil, which, if gravelly or sandy, will quickly allow the water to pass off; if, however, the subsoil is of clay, then provision must be made for ample drainage, else, no matter of what material the walk or road is composed, unless the water passes through it or off it rapidly, it will never be satisfactory.

Wall-Cress. The genus *Arabis*.

Wall Fern. *Polypodium vulgare.*

Wall Flower. See *Cheiranthus.*
Fairy. *Erysimum pumilum.*
Western. *Erysimum Arkansanum.*
Alpine. *Erysimum ochroleucum.*

Walli'chia. Named after *Dr. Nathaniel Wallich*, Superintendent of the Botanical Garden, Calcutta, and author of several valuable works on Indian plants. Nat. Ord. *Palmaceæ.*

A small genus of dwarf, tufted, stove-house palms, natives of the East Indies. *W. caryotoides* and *W. densiflora* are both in cultivation, and require a strong, rich soil and a warm, moist temperature. They are increased by seeds when procurable, or by gradually separating the suckers so as to allow them to make sufficient root before they are quite detached.

Wall-Pennywort. A common name for *Cotyledon umbillicus.*

Wall-Pepper. A name given to *Sedum acre.*

Wall-Rue. The popular name of *Asplenium Ruta-muraria.*

Walnut. The common name of *Juglans regia.*

Walnut. Black. *Juglans nigra.*

Wandering Jew. A common name for *Tradescantia zebrina* (see *Zebrina*); also applied to *Saxifraga sarmentosa.*

Wanghee, Whangee. The names given to some Eastern canes; species of *Phyllostachys*, imported in large quantities for the manufacture of walking-sticks.

Waratah. See *Telopia speciossima.*

Wardian Case. This is a neat contrivance, used for such plants as require a moist, still atmosphere, such as Ferns, Mosses, the so-called "insect-eating" plants, as *Nepenthes, Sarracenias, Dionæas*, etc., or tropical plants grown for the beauty of their leaves, as *Dracænas, Crotons, Marantas, Caladiums*, etc. The Wardian Case has a base or tray made of Black Walnut, Oak or other ornamental wood about six inches deep and lined with zinc, and glass sides and hinged top; or the tray is made of terra cotta or other earthenware. They are made of various sizes, the average, however, being about twenty-four inches long and sixteen inches in width and height. They should be elevated on a stand to a height that will allow its contents to be best seen, as the plants used for that purpose should be such as will bear the closest inspection for richness of shading or curious construction of leaves. When the Wardian Case is first filled with plants, it should be given water sufficient to reach to the bottom of the soil, but not enough to make the soil too wet. The top of the case is hinged, so that it can be lifted to allow the escape of moisture, which, when in excess when the case is closed, will be known by its trickling down the sides of the glass. Usually it will be sufficient to raise the lid an inch or so every day or two to keep the glass free from this moisture; and no ventilation is necessary except to get rid of this excess, as the closer it is kept the better it is for the welfare of the peculiar class of plants suited for it. The effectiveness of the Wardian Case depends a great deal on the arrangement of the plants, the tallest and most conspicuous being in the centre, with the smallest towards the edges, varying the interest on all sides of it by contrasting the different colorings and forms of the leaves. The Wardian Case should be placed in a position where it does not get the direct sunlight. The plants with which it is usually filled are natives of shady woods or marshes, where they are sheltered from winds and in partial shade, and the nearer their natural condition can be imitated in the Wardian Case the better. Ferneries, so called, require substantially the same character of plants and the same treatment, the only real difference being that they are round, and the glass covering is what is known as a bell glass.

Wa'rrea. Named after *F. Warre*, a botanical collector. Nat. Ord. *Orchidaceæ.*

A small genus of Orchids from Central and South America, resembling *Maxillaria.* They are of neat habit, and produce their showy flowers freely. *W. cyanea* is remarkable for the deep blue color of its lip, pure blue being rarely found among Orchids. This genus succeeds best in pots in leaf-mould and sphagnum moss. They require no rest, and may be grown in a moderately warm house.

Warszewicze'lla. A genus of *Orchidaceæ*, now included under *Zygopetalum.*

WAS WAT

Washingto'nia. The generic name now adopted by some botanists for two species of Californian Palms, *W. filifera* and *W. robusta*. The former is known in cultivation as *Brahea* and *Pritchardia filamentosa*.

Washington Thorn. A common name for *Crataegus cordata*, found from Virginia southward along the Alleghanies, etc.

Warted Gourd. *Cucurbita Pepo verrucosa.*

Water Aloe or **Water Soldier.** Common names for *Stratioides aloides.*

Water Anemone. A common name for *Ranunculus aquatilis.*

Water Archer. *Sagittaria Sagittifolia.*

Water Arum. The popular name of *Calla palustris.*

Water Beech. A popular name for *Carpinus Americana.*

Water Chestnut. See *Trapa.*

Water Chinquapin. See *Nelumbium.*

Water-cress. See *Nasturtium.*

Waterfall. A Waterfall or Cascade is a decided improvement where a running stream passes through a park or lawn, and is formed by first constructing a bank of masonry presenting an inclined plane to the current and rendering it impervious to water by the use of cement; and next by varying the ridge of the bank and the bed of the stream below it with fragments of rock, so chosen and placed as not to present a character foreign to what nature may be supposed to have produced there. The adjoining ground frequently requires to be raised at such places, but may be harmonized by the judicious planting of shrubs or trees.

Water Flag. *Iris Pseud-acoris.*

Water Gladiole. A name given by Gerarde to the Flowering Rush, *Butomus umbellatus.*

Water Hemlock. See *Cicuta.*

Water Hemp. See *Acnida cannabina* and *Bidens tripartita.*

Water Horehound. *Lycopus Europæus.*

Watering. This is one of the most important operations in the indoor culture of plants, and one that it is almost impossible to get a proper knowledge of without actual experience, as the circumstances are so various when water should be given or withheld, that, were we to write a volume on the subject, it would not be of as much value as a year's actual practice. There are, however, some general rules that it will help the beginner to keep in mind. One important rule is, never to water a plant until it is dry. What this condition of dryness is, is governed not altogether by the indications of the soil being dry on the surface, but also by the vigor of the plant. A good rule is to rap the side of the pot with the knuckles; if dry, it should have a ringing sound, and should have sufficient water given it to penetrate the entire ball; if a dull and solid sound, the plant requires no water. A luxuriant plant, growing in a temperature of 70° or 80°, with indications of dryness on the surface of the pot, should receive sufficient water to saturate the soil to the bottom; while a plant that has been cut down for cuttings, or by any other reason defoliated, and thus lessened in vigor, should not be watered until almost at the point of wilting. Again, experience tells us that soft-wooded plants, such as Geraniums, Fuchsias or Heliotropes, will recuperate even when dried to wilting, if thoroughly soaked, while hard-wooded plants, such as Azaleas, Heaths or Camellias, under the same circumstances, would fail to recover. All succulent plants, such as Cacti, Sedums, Echeverias, etc., will admit of being kept nearly entirely dry during the dormant season; and, although they will exist with but little water even for twelve months, yet, when their proper season of growth begins (which will be indicated by the developing of the buds or shoots), they require water nearly as regularly as the ordinary class of soft-wooded plants.

The degree of atmospheric *moisture* kept in the green-house greatly determines the amount of water required at the roots, and a proper degree of atmospheric moisture is indispensable for the welfare of the plants. When firing in winter sufficient to raise the temperature to 50 degrees, or in dry weather at other seasons, this moisture can either be had by evaporating pans on the pipes or by *syringing*, judgment being used, of course, by the state of the atmosphere; for in wet or muggy weather the artificial means of producing moisture should be stopped. It is claimed by some, that plants should be watered or syringed by water at the same temperature as the house. When this can be done without inconvenience, it may be as well to do so; but we have proved by over twenty-five years' extensive experience, that it is not a necessity, for we rarely use water at a higher temperature than 45 degrees, either in watering or syringing, and have never known an instance where injury was done. *The ordinary* watering of plants from sowings or plantings in the open ground in dry weather we believe to be of little avail, if it is not sometimes a positive injury, unless the circumstances are such that the plants can be completely *flooded* or *irrigated.*

Water Leaf. A common name for the genus *Hydrophyllum*, which see.

Water Lemon. *Passiflora laurifolia.*

Water Lettuce. See *Pistia.*

Water Lily. See *Nymphæa odorata.*
Blue. *Nymphæa scutifolia.* Syn. *N. cyanea.*
Chinese. *Nelumbium speciosum.*
Egyptian. *Nymphæa Lotus*
Florida. *Nymphæa flava.*
Royal or Victoria. *Victoria regia.*
Yellow. *Nuphar lutea.*

Water Locust. *Gleditschia monosperma;* found from South Carolina southward, generally near the coast, reaching its greatest development on the bottom lands of southern Arkansas, Louisiana and eastern Texas.

Water Maize. *Victoria regia.*

Water Melon. *Citrullus vulgaris.* The cultivation of the Water Melon is in all respects similar to that of the Musk Melon or Cucumber, except that being a larger and stronger growing plant it requires to be planted at greater distances apart. It delights in a light, sandy soil, and will not grow satisfactorily on heavy, clayey soils. It is now one of the staple crops in many of the Southern States, hundreds of tons being shipped to the northern and western markets every season. At the

date of writing, the most approved kinds are, Phinney's Early, Rattlesnake or Gipsey, Iron-clad Mammoth and "Green and Gold." Many other sorts are, of course, favorites in different sections of the country.

Water Milfoil. See *Myriophyllum.*

Water Nymph. One of the popular names of *Nymphæa odorata.*

Water Oak. *Quercus aquatica,* and sometimes *Q. palustris.*

Water Parsnip. The common name of the genus *Sium,* poisonous aquatic plants.

Water Pennywort. A popular name for aquatic plants belonging to the genus *Hydrocotyle,* which see.

Water Pepper. A common name of the *Polygonum Hydropiper,* which is also called *Smartweed.*

Water Pimpernel or Brookweed. The common name of marshy weeds belonging to the genus *Samolus.*

Water Plantain. See *Alisma Plantago.*

Water Plants. The numerous water plants are now grown to such perfection in many of our parks and private gardens that we deem it advisable to devote a special article to them, though they will be found elsewhere described in their order. Many have been deterred from attempting their culture by the idea that a special green-house and tank must be built for their accommodation, and though the various species can be had in flower almost all the year round in such a structure, they may be grown with great success out-of-doors and made to form one of the most attractive features of the garden or lawn during the summer months. They may be successfully grown in large tubs or half-barrels in the open air, either on the surface or sunk in the ground.

A very effective and inexpensive plan is to arrange the tubs in connection with a rockery, a large tub in the centre being placed somewhat higher than the rest, and connected by pipes or by pieces of rubber hose, so that the overflow from the large tub runs from one to the other, changing the water in all. Oil barrels cut in two make excellent tubs.

The space around the tubs is filled with good, rich compost, held in place by large stones, in which foliage and flowering plants, such as tuberous-rooted Begonias, Sedums, Caladiums, Palms, etc., are planted. The effect produced in this manner is really beautiful.

They can, however, be grown to much greater perfection if allowed plenty of room in a tank or pond made especially for their reception. This should be in a warm, sunny situation on the lawn or elsewhere, where by judicious planting of the background with Ferns, Musas, Bamboos, Caladiums, Cannas, etc., they may be shown off to much better advantage, and the tropical idea of the scene sustained.

For the more tender kinds it is necessary, in this latitude, to make the bottom of cement or concrete, as the water is then more readily heated by the sun and retains its heat better. As several of the species are rampant growers it is advisable to have partitions made for them so that they will be confined within proper limits. Means ought also be provided for emptying the tank of water when desired, and also a waste-pipe near the top for overflow, so that fresh water may be run in occasionally to prevent stagnation.

They may also be grown in the base of a fountain, but they will not flourish if the spray is allowed to fall on the leaves.

Most of the species do not require the water to be over two feet in depth, but if the larger species are desired it will be necessary to sink holes a foot or more deep and four feet wide to hold sufficient soil for their reception. The various species (which should have been started in the green-house) may be planted out in the beginning of June when they will soon commence to bloom, continuing until the first frost. If it is desired to enjoy the longest possible season of bloom in the open air, the pond may be located near the green-house and some connection made with the hot-water boiler. Waste steam from a factory or other concern could be utilized for this purpose.

The best soil for growing all kinds of aquatic plants is a good, rich, fibrous loam, with a liberal admixture of well rotted stable or cow manure. Rich mud from the bed of a pond or sluggish stream is also good, but we consider the first-mentioned the best. The compost should be well mixed, placed in the tank with a good layer of clean sand on the top to purify the water and prevent muddiness.

These conditions, viz., still, warm water and rich compost, favor the growth of a low form of vegetable life, called confervæ, or green scum, which becomes very unsightly and troublesome unless eradicated. As the result of several years' experience, we are quite positive that, if abundance of Gold-fish are kept in the tank or pond, there will be no trouble in this direction.

Innumerable kinds of aquatic insects breed in the water, and some of their larvæ prey upon the leaves of the Lilies, but the common water-snail is the greatest enemy of aquatic plants. The Gold-fish assist very materially in destroying these larvæ and snails, but we have found a complete preventive of injury to the foliage from this source by keeping in the tank, in addition to the Gold-fish, some of the common spotted Sun-fish. They are carnivorous in habit and very alert and active. Moreover, it is impossible for mosquitoes to breed in a Water Lily basin in which abundance of the above-named fish, or those of similar habit, are kept. Their beautiful appearance, and the ease with which they may be taught to feed from the hand (though it must not be done too frequently), make them charming adjuncts to the Water Garden. If the tank is two feet or more in depth, they can be left in it all winter with perfect safety in this latitude. Thus one objection to locating these tanks or ponds in the vicinity of the dwelling-house is removed.

Sometimes, toward autumn, brown aphides, or plant lice, become troublesome on the Lily leaves. We have found a weak solution of kerosene emulsion (see Insecticides) to be a perfectly safe remedy without any injury whatever to the plants.

The many species that can be successfully grown and flowered in the open air in this latitude are described in their proper place in this work, but for convenience we here group them together.

NIGHT-BLOOMING WATER LILIES. Unlike our native *Nymphæa odorata*, some species open their flowers at night, beginning about eight o'clock and remaining expanded until about ten o'clock the next morning, each flower opening three nights in succession.

The following will be found the most desirable of this class: *Nymphæa Devoniensis* (rosy red with scarlet stamens), *N. rubra* (brilliant red), one of the parents of the foregoing, *N. Sturtevanti* (a semi-double variety, with rosy-red flowers, not so free flowering as the others), *N. dentata* (a native of Sierra Leone, with white sweet-scented flowers), *N. Lotus* (pure white) and *N. Ampla* (sulphur-white), strongly banana-scented.

The day-flowering and other ornamental water-plants we group together: *Nymphæa scutifolia* (syns. *N. cærulea* and *N. cyanea*) (lavender blue), *N. Zanzibarensis*, unquestionably the deepest colored and finest of all the blue Water Lilies known, there are several varieties of it now in cultivation: *Nelumbium speciosum*, *Limnocharis Humboldtii* and *L. Plumieri*, *Ouverandra fenestralis*, *Pontederia crassipes major*, *Pondeteria azurea*, *Pistia stratioides*, *Salvinia Trianæa*, *Azolla*, etc. *Myriophyllum Proserpinacoides*, a comparatively new introduction from Brazil, is also desirable, on account of the exquisite beauty of its leaves, which are arranged in whorls along the stem, and are as finely divided as the most delicate Fern. *Hedichiums*, *Cannas*, *Richardias*, *Papyrus antiquorum*, *Cyperus alternifolius*, and other plants may be partially immersed and will add largely to the beauty of the arrangement, especially if used as a background.

Many of our hardy aquatic plants can also be introduced, and will be found of great service—*Nymphæa odorata* and its rose and yellow colored varieties, *Nelumbium luteum*, *Limnanthemum Lacunosum*, *Aponogeton Distachyon*, *Trapa*, the various *Sagittarias*, *Callas*, *Pondeterias*, etc.

In conclusion, we cannot do better than quote from Mr. Sturtevant, the pioneer of water-plant culture in America. See "Possibilities of Aquatic Gardening" in "Gardening for Pleasure," pages 121–125:

"One argument in favor of cultivating tropical Lilies in the open air is, that larger leaves and flowers are obtained, and in case of the colored kinds, greater depth of color than under glass. Another argument is, the grand effect which may be produced on the lawn or in any part of the pleasure ground. Let us suppose that you wish to have an aquatic garden, fifty, sixty or a hundred feet in diameter. We will not build it in the stiff form of a circle or oval, but the outline shall be irregular, with here and there a small bay, across which we will throw a rustic bridge to a miniature peninsula. Somewhere on the margin we will build a rustic summer-house. It shall be a two-story affair, for sometimes we shall want to view our pets from an elevated position; for, unlike our fellow-creatures, they smile upon us when we look down upon them. If we have a rocky ledge in our grounds, let us place our pond near it. Now, let us suppose

that all has been planted, established, and come to midsummer perfection. Some morning, before the night-blooming Lilies have begun to take their midday sleep, let us ascend the low tower and take a view of the picture. There, beneath us, is the noble *Nymphæa dentata*, covering a space twenty feet in diameter, some of its leaves two feet across, and its milk-white flowers twelve inches across; there is the grand *N. rubra*, with its immense cups of glowing carmine; and, there, queen of them all, is *N. Devoniensis*, surpassing in brilliancy of flower, if not in size of leaf, the famous *Victoria regia*. Then come groups of these same Lilies, planted more thickly; and though the flowers are smaller, yet they are more numerous and just as brilliant. Yonder, a little bay is filled with Egyptian Lotus, its pink and white flowers, on stalks three feet above the water, looking like immense tulips. Next is a mass of the American Lotus, with its sulphur-yellow flowers; some of its floating leaves have strayed out into an open space, and are thirty inches in diameter. Let us descend and walk along the border of our little lake. Here is a plantation of the lovely blue, *N. scutifolia;* you perceive its fragrance before you come near it. Next is the beautiful Yellow Lily from Florida; and our own sweet Water Lily is not forgotten, for it is here in masses. Associated with it are its charming new, rose-colored variety, *N. odorata rosea*, and the delicate pink-tinted one. Here are *N. candidissima* and *N. alba rosea*, with their waxy petals, similar in color to some of the others, but having their own distinctive merits and attractions. The favorite Calla of our winter gardens lifts its white trumpets towards the sky, and numerous smaller-flowered aquatics are found in profusion along the edge of the water. Coming around to the Lotuses again, we find growing near them, in shallow water, great clumps of the Egyptian Papyrus, with its plumy heads on stalks six feet high. Now let us look at some of the plants which associate well with water, and help form a background for our picture. Scattered along the margin we find groups of ornamental grasses, Eulalias, Erianthus, and Pampas Grass. Yonder, on our little peninsula, stands a noble Banana (*Musa Ensete*), twelve feet high. Farther on is a clump of the tall Bamboo (*Arundo Donax*), and its variegated variety. There are groups of Cannas, and a large Palm, brought from the green-house to spend the summer in the open air. Another stately plant is *Colocasia odorata*, with a tree-like trunk and fine, large leaves. What is this great-leaved plant near the water's edge? It is *Gunnera scabra* (the Giant Rhubarb), with leaves six feet in diameter. Now do you wish to give your friends a glimpse of fairyland? Then illuminate your grounds, and invite them to an evening fête or garden party. The Lotuses and hardy Lilies have closed their flowers, but the night-blooming Water Lilies offer us a feast for the eyes at night. Place large lamps, with reflectors, in such a position as to throw a powerful light directly upon the flowers; or, perhaps, Edison's magic lamps are available, and you suspend a number of them in mid-air over the water. Now the red Lilies fairly glow with color, and are far more beautiful than by daylight. The water is like

a mirror, and in its depths you behold another glorious picture—a perfect image of the flowers themselves. The large, star-like white ones keep company with the red in their night watches, and are not unworthy companions for them. Look around at the floating leaves, the numerous buds which will open with to-morrow's sun, the tall shields of the Lotus, the rich, tropical foliage on the banks, the rustic arbor covered with myriads of the silvery blossoms of the Moon Flower (*Ipomœa* or *Calonyction grandiflora*), and tell me if this is not a fairy scene. And having taken a view of the Water Lily Garden by daylight and by lamplight, will you not acknowledge that in all that is really beautiful it far surpasses the most elaborate exhibition of carpet-bedding?

"Perhaps you will say this is a fancy sketch. Our answer is, that it has been so far realized that we do not hesitate to place such a garden as we have described among the list of 'Possibilities of Horticulture' in America."

Water Purslane. A common name for *Ludwigia palustris* and *Peplis portula*.

Water Rice. See *Zizania*.

Water Shield. A common name of one of the Water Lily family, of the genus *Brasenia*.

Water Soldier. See *Stratiotes*.

Water Violet. *Hottonia inflata*, a white-flowered, aquatic perennial, common in the Southern States.

Water White Oak. *Quercus lyrata*.

Water Willow. American. See *Dianthera*.

Water-wort. *Elatine Americana*.

Watso'nia. Bugle Lily. Named in honor of *W. Watson*, a celebrated London apothecary. Nat. Ord. *Iridaceæ*.

A genus of half-hardy bulbs from the Cape of Good Hope, formerly classed with the Gladiolus, to which genus they are closely allied, and to which they bear a close resemblance. They require the protection of a frame during winter, or they may be grown successfully in the green-house, where their long spikes of brilliant flowers, scarlet, pink, flesh, white and purple, make a magnificent appearance. This, like others of its class, receives but little attention in this country, where flowers are so abundant from early spring until winter, that do not require any special care or protection. The beauty of the flower garden in June would be far greater if a little attention were paid to the growing of what is known as Cape Bulbs, the only requirement being a cold frame of any desired size, and the bulbs protected against hard frosts, but more particularly against rains, too much moisture during the season of rest being very destructive to the whole class. The gorgeous flowers that the many species and varieties afford in June amply repay the slight cost and care in producing them. The *Watsonias* are produced freely from offsets. Introduced in 1754. Syns. *Meriana* and *Neuberia*.

Wattle. An Australian name applied to various species of *Acacia* and *Citharexylum*.

Wax-Flower. See *Hoya*.

Wax-Flower. Clustered. *Stephanotis floribunda*.

Wax-Myrtle. A common name for *Myrica cerifera*, which see.

Wax-Palm. See *Ceroxylon*.

Wax-Pink. A common name for several species of *Mesembryanthemum*.

Wax-Plant. The common name for *Cerinthe major*.

Wax-Tree. See *Vismia Guianensis*.

Wax-work. The climbing Bitter-Sweet, *Celastrus scandens*, is sometimes called Wax-work, from the appearance of its orange-colored pods. See *Celastrus*.

Wayfaring-Tree. See *Viburnum Lantana*.

We'bera. Named in honor of *G. H. Weber*, Professor at Kiel and author of several botanical works. Nat. Ord. *Rubiaceæ*.

A genus of stove-house trees and shrubs, natives of tropical Asia, Africa and Australia. Only one or two species are in cultivation. Syns. *Ceriscus*, *Stylocoryne* and *Tarenna*.

Wede'lia. Named for *G. W. Wedel*, a German botanist, Professor at Jena. Nat. Ord. *Compositæ*.

A genus of annual or perennial herbs or shrubs, widely distributed throughout the tropical regions. The several species in cultivation are interesting from a botanical standpoint only.

Weeds. All plants are so called that come up spontaneously in the ground where crops are sown or planted, no matter what they are; for, if not wanted there, no matter how ornamental they may be, they are out of place, and should be cut down as weeds. Annual weeds are the most troublesome on cultivated grounds, but, if taken in time, are easily kept down by use of the steel rake, which, if used before the weeds appear above the surface, makes this part of cultivation a simple matter. (See Rake.) It is of the utmost importance for the welfare of crops that weeds should never get a headway; for not only is the labor of destroying them doubled or quadrupled, but they are generally the grossest kind of feeding plants, which thus deprive the crop of its legitimate food. The evil of neglect to destroy weeds is not confined to one season; for when allowed to go to seed, the penalty is paid year after year, often for four or five years after, the seeds coming up as plowing or digging brings them to the surface for germination. We can call to mind instances where market gardens, cultivated in close seed crops, were rendered almost useless in the hands of slovenly owners. When ground gets into this condition, the only remedy is to grow crops such as Cabbage, Potatoes or Corn, which have vigor enough to crowd down an excessive crop of weeds. If land is filled with the seeds of weeds, such crops as Onions, Carrots, Parsnips, Strawberries or Spinach will rarely pay for the labor of cleaning.

Weeds in Lawns. See Lawns.

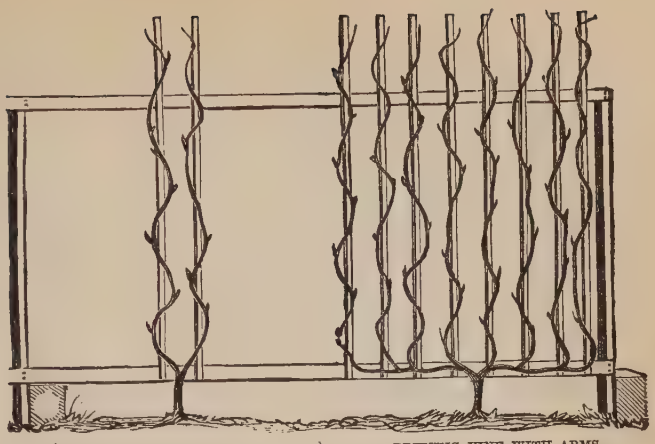
Weeping Cherry. *Cerasus semperflorens*.

Weeping Willow. See *Salix Babylonica*.

Weige'lia. Named in honor of *C. E. Weigel*, a botanical writer, and author of "Observ. Botan." in 1772. Nat. Ord. *Caprifoliaceæ*.

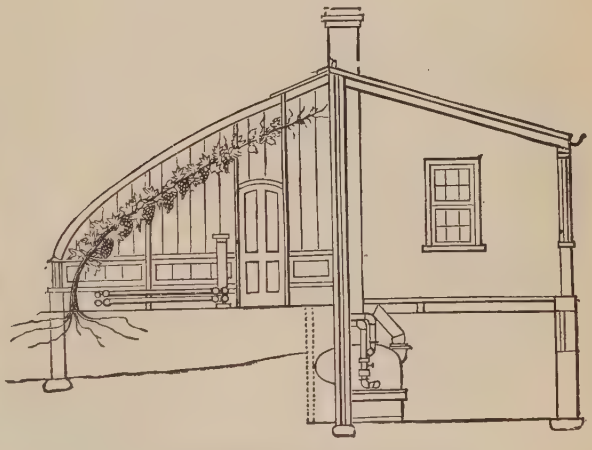
This genus of very ornamental, hardy, deciduous shrubs was introduced from China and Japan in 1843 by Mr. Fortune, to whom we are indebted for many rare and beautiful

WHITLAVIA GRANDIFLORA.

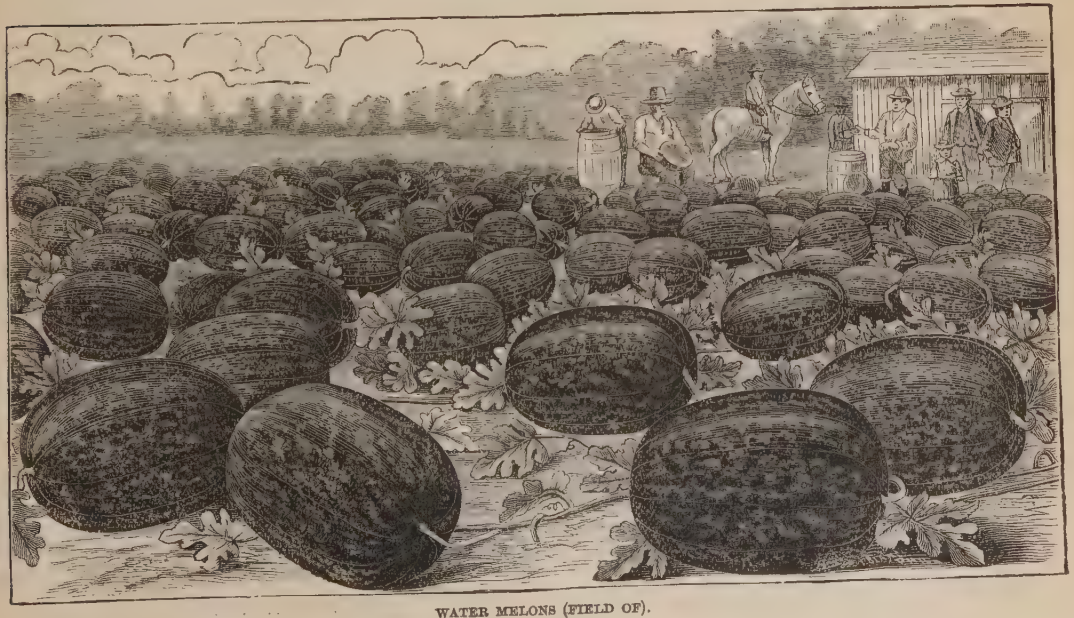


VITIS (PRUNING VINE WITH TWO SHOOTS). PRUNING VINE WITH ARMS.

WATER MELON (KOLB'S GEM).



VITIS (SECTION OF FORCING GRAPERY).



WATER MELONS (FIELD OF).

VENIDIUM CALENDULACEUM.

XERANTHEMUM ANNUUM.

WATSONIAS.

WASHINGTONIA (BRAHEA) FILAMENTOSA.

WATER PLANTS IN CENTRAL PARK, NEW YORK.

plants and flowers. It is safe to say there is no shrub more deservedly popular, or one that has been more rapidly disseminated. All the species are ornamental, and should be found in every collection of choice shrubs. *W. rosea* is the original species; its flowers are produced in great profusion in axillary clusters. *W. amabilis*, the largest of the species, is looser and more spreading in habit, with very dark-red flowers. *W. hortensis nivea*, a species introduced from Japan in 1863, is one of the best. It is a vigorous grower of drooping habit; the flowers are pure white, produced in great abundance in June and July, with occasional flowers during the summer. *W. rosea variegata* is a splendid variety, with variegated foliage (green mottled with yellow), contrasting finely with dark-leaved shrubs or evergreens. Many new varieties have been introduced of late years, chiefly crosses from *W. grandiflora*. These have been given distinct names which may be found in any general nursery catalogue. To make this genus flower freely they should be well pruned in, during summer, thus giving the shorter shoots so formed a chance to ripen off. All the species are increased by cuttings, which will grow if taken off in autumn and planted in the open border. Weigelias are sometimes placed botanically under the genus *Diervilla*, which also includes other species, our native *D. trifida* and *D. sessiliflora* being among them.

Weinma'nnia. White Alder. Named after *J. W. Weinmann*, of Ratisbon, author of several botanical works. Nat. Ord. *Saxifragaceæ*.

A large genus of plant-stove shrubs, natives of the tropics, few of which are in cultivation. The bark of some of the species has been used in Peru for tanning leather, and it has also been employed in the adulteration of Peruvian Bark. Syn. *Leiospermum*.

We'lfia. Named in honor of the last King of Hanover. *Welf* or *Guelph*. Nat. Ord. *Palmaceæ*.

A small genus of very beautiful Palms, allied to *Geonoma*. The foliage has a peculiar and beautiful bronzy color while unfolding. In the younger stages the leaves are simply bilobed; but as the plants develop they become pinnate. They are natives of Costa Rica and New Grenada. Young plants are obtained from seed.

Wellingto'nia. A synonym of *Sequoia*, which see.

Welsh Onion. *Allium fistulosum.*

Welsh Poppy. See *Meconopsis Cambrica.*

Welwi'tschia. Named in honor of *D. Frederic Welwitsch*, a celebrated botanical traveler. Nat. Ord. *Gnetaceæ*.

W. mirabilis, the only species, is one of the most remarkable productions of the vegetable kingdom. It was discovered by Dr. Welwitsch in the dry, sandy country of the Mossamedes, in western Africa. The two leaves were at first described as being simply persistent cotyledons enormously developed, but such is not the case; the two cotyledons last for some time, and then the true leaves appear. They spring from two deep grooves in the trunk, six feet or more in length, quite flat, linear, very leathery, splitting with age into innumerable thongs that lie curling on the

surface of the soil. The trunk is obconical, about two feet long, rising a few inches only above the soil, with the appearance of a flat two-lobed depressed mass, sometimes fourteen feet in circumference. When fully grown, it is dark brown, hard and cracked, the lower part forming a stout tap-root buried in the soil. It was first introduced in 1868.

Wendla'ndia. Named in honor of *M. Wendland*, a Hanoverian botanist. Nat. Ord. *Rubiaceæ*.

A genus consisting of trees or shrubs, natives of the East Indies. The flowers, which are white, pink or yellow, are borne in densely flowered, terminal panicles. There are about sixteen species described, of which some two or three are in cultivation. They require stove-house temperature, and are increased by cuttings.

Werne'ria. Named in honor of *A. G. Werner*, Professor of Mineralogy at Friburg, 1750–1817. Nat. Ord. *Compositæ*.

A genus of dwarf perennial plants, natives of the Andes of South America. *W. rigida*, the only introduced species, thrives in a light soil, and may be increased by division of the roots. Syn. *Doronicum Peruvianum.*

Western Wall-Flower. This name has been applied to the flowers of the *Erysimum Arkansanum* (Treacle Mustard), because they are as large as those of the Wall-Flower. See *Erysimum.*

Western Yew. A name given to *Taxus brevifolia.*

West Indian Cabbage Palm. See *Oreodoxa.*

Whahoo or **Winged Elm.** See *Ulmus alata.*

Whangee or **Wangee Cane.** *Phyllostachys nigra.*

Wheat. See *Triticum.*

Whin or **Furze.** The common name for *Ulex Europæus.*

Whin. Petty or Needle. The common name for *Genista Anglica.*

White Alder. One of the popular names of the genus *Clethra*, also given to *Platylophus trifoliata* which see.

White Ash. See *Fraxinus.*

White Bladder Flower. A name applied to *Physianthus albens.*

White Cedar. A name applied to *Thuya occidentalis* and *Cupressus thyoides.*

White Clover. See *Trifolium repens.*

White Cypress. *Taxodium distichum.*

White Daisy, Ox-Eye Daisy. See *Leucanthemum vulgare.*

White Hellebore. See *Veratrum viride.*

White Laurel. See *Magnolia glauca.*

White Lettuce. Rattlesnake Root. The popular name of the common weed *Nabalus albus.*

White Oak. See *Quercus.*

White Pine. See *Pinus Strobus.*

White Snake Root. See *Eupatorium Ageratoides.*

White Spruce. See *Abies alba.*

White Thorn. Hawthorn. See *Cratægus.*

White Water Lily. See *Nymphæa.*

White Weed. See *Leucanthemum vulgare.*

WHI

White Wood. A name applied to *Liriodendron tulipifera, Tilia Americana*, etc.

Whitfie'ldia. Named after *T. Whitfield*, a collector of African plants. Nat. Ord. *Acanthaceæ.*

A small genus of ornamental stove-house shrubs, natives of tropical Africa. *W. lateritia*, the only introduced species, has showy orange-red flowers and coriaceous, ovate, evergreen leaves. It is increased by cuttings of the young wood.

Whitla'via. Named in honor of *F. Whitlaw*, an Irish botanist. Nat. Ord. *Hydrophyllaceæ.*

A small genus of hardy annuals of low growth, from California, producing freely handsome white or violet-blue flowers. They are very effective in any department of the flower garden, whether in beds, borders or ribbons. They require the same treatment as other hardy annuals. Introduced in 1854.

Whitloof or **Witloof.** A local name for a variety of *Chicory.*

Whitlow Grass. The genus *Draba* and *Paronychia.*

Whorl. Similar organs arranged in a circle round an axis, as the leaves of some Lilies.

Whortleberry. See *Gaylussacia* and *Vaccinium.*

Widdringto'nia. African Cypress. Formerly included in the genus *Thuya*, but now constituting a distinct group of the Cupressineous division of *Coniferæ.* The species consist of trees, natives of the Cape of Good Hope, and have crowded, alternate leaves, not opposite, as in Thuya. *W. Cupressoides*, better known as *Thuya cupressoides*, is cultivated as a half-hardy evergreen. Introduced in 1799.

Widow. Mournful. A common name for *Scabiosa atropurpurea.*

Widow's Tears. A popular name for *Tradescantia Virginica.*

Wiga'ndia. Named in honor of *John Wigand*, a Bishop of Pomerania. Nat. Ord. *Hydrophyllaceæ.*

A small genus of ornamental-leaved plants from Mexico and Caraccas. The leaves are immense, being three feet long by one and a half in width, richly veined, and the stems covered with crimson hairs. *W. macrophylla* (syn. *W. Caracasana*), a most beautiful species, is a magnificent plant for massing on large lawns, or for planting as single specimens on smaller grounds. *W. Vigieri*, is also an excellent ornamental species much used in sub-tropical gardening. Plants of this genus should be grown annually from seed; though the plant is a perennial, old plants lose all their beauty of foliage and get scraggy. Young plants may be had by sowing the seed in the green-house or a hot-bed, and growing them on until the time for planting out. For small gardens none of the plants are desirable, as they require room, light and air to grow them in perfection. They were first introduced in 1837.

Wig-Tree. A name applied to *Rhus cotinus.*

Wild Allspice, Fever Bush. Local names of the genus *Lindera*, which see.

Wild Apple. Garland Flowering. See *Pyrus spectabilis.*

Wild Balsam Apple. The fruit of *Echinocystis lobata*, a genus of *Cucurbitaceæ.*

WIN

Wild Bean. *Phaseolus perennis.*

Wild Bergamot. Horse Mint. See *Monarda fistulosa.*

Wild Chamomile. See *Matricaria.*

Wild Clary. *Salvia Verbenaca.*

Wild Comfrey. *Cynoglossum Virginicum*, a troublesome, obnoxious weed, common especially westward.

Wild Elder. *Aralia hispida*, sometimes called Bristly Sarsaparilla.

Wild Geranium. See *Erodium.*

Wild Ginger. *Asarum Canadense.*

Wild Guelder Rose. See *Viburnum.*

Wild Hyacinth. See *Camassia.*

Wild Lily of the Valley. See *Smilacina.*

Wild Liquorice. *Galium lanceolatum* and *Abrus precatorius.*

Wild Marjoram. See *Origanum.*

Wild Mustard. See *Sinapis.*

Wild Oat Grass. A popular name of the genus *Danthonia*, which see.

Wild Olive. See *Elæagnus.*

Wild Pink. *Silene Pennsylvanica.*

Wild Potato Vine. *Ipomœa pandurata.* Sometimes called Man of the Earth, on account of the size and shape of the tubers.

Wild Radish. *Raphanus raphanistrum.*

Wild Rice. See *Zizania.*

Wild Sarsaparilla. See *Aralia nudicaulis.*

Wild Sensitive Plant. See *Cassia nictitans*, a low-growing annual plant, closely resembling the Sensitive Plant.

Wild Service Tree. See *Pyrus.*

Wild Snow-ball. A common name for *Ceanothus Americanus.*

Willdeno'via. Named in honor of *C. L. Willdenow*, Professor of Botany at Berlin, 1765–1812. Nat. Ord. *Restiaceæ.*

A genus of interesting green-house plants with rush-like, leafless stems; natives of southern Africa. *W. teres*, probably the only cultivated species, thrives in a compost of loam and leaf-mould and may be increased by division. Syn. *Nematanthus.*

Willeme'tia. Named in honor of *P. R. Willemet*, author of "Herbarium Mauritianum." Nat. Ord. *Rhamnaceæ.*

W. Africana, the only species, is a pretty, glabrous, green-house shrub, with cymes or panicles of white flowers. It is a native of southern Africa, and is readily increased by cuttings. It is also in cultivation under the name of *Noltia Africana.*

Willow. See *Salix.*

Willow. French or Persian. *Epilobium angustifolium.*

Willow Grass. *Polygonum amphibium.*

Willow Herb. See *Epilobium.*

Willow Oak. *Quercus Phellos.*

Wind Flower. A popular name for *Gentiana Pneumonanthe*, and the genus *Anemone.*

Window Gardening. This is yearly becoming more popular with us, and in all our best-appointed hotels, window boxes or stands of plants are seen, often arranged with exquisite taste. The plants selected are usually such

as are attractive for their beauty of foliage, rather than flower, as few plants can be found whose flowers will long remain perfect in the dry atmosphere of our sitting or dining-rooms. The plants best fitted for such purposes are found to be Palms, Cordylines, Aspidistras (variegated), Ophiopgon, Antherícum vittatum, Crotons and Dracænas, the Screw Pine (Pandanus), etc., for winter, and Caladiums, Coleuses, fancy-leaved Begonias, Petunias, and many others for summer. When flowering plants are used for temporary decorations, Primulas, Cyclamens, Azaleas, Passifloras, Camellias, Mignonette, Sweet Alyssum, Heliotrope, Carnations, Roses, or other flowering plants having fragrance are selected. The boxes used in window gardening are made of a great variety of materials, such as wood, terra cotta, iron, rustic or wicker work, etc. But as the box is only a medium to hold the plants, the latter should be the object of attraction, and not the box, so that any ordinary box made of pine will answer a temporary purpose just as well as an expensive one, as the sides soon become covered up with the drooping or creeping plants.

The window box should be made of a length to suit the size of the window sill, and from eight to twelve inches wide, with a depth of from four to six inches. On a visit to London some years ago we found that the rivalry of the occupants of houses in window gardening even exceeded that in their door yards, the windows of the houses on each side of the street to four and five stories in height, for miles in length, presenting a scene of bright colors perfectly dazzling, markedly among which were the blue of the Lobelia, the yellow of the golden Moneywort, and the scarlet of the Tropæolum, forming drooping curtains of these brilliant colors, often to a length sufficient to reach the window below. The plants used in arranging the window box are so much a matter of taste that we will not here make suggestions, other than to say that the best effect is had by making the inner row of plants of a bushy nature, say Geraniums, Begonias, Coleus, Heliotrope, etc., interspersed with Ficus, Palms, or other decorative plants; while for the outer row to droop, Lobelias, Nasturtiums, Golden Moneywort, Petunias, etc., may be used. Individual taste, however, is sure to govern the selection.

Wind-Root. A local name for *Asclepias tuberosa.*

Wind Rose. *Papaver Argemone* and *Roemeria hybrida.*

Wine Palm. East Indian, *Phœnix sylvestris.*

Wings. The lateral petals of a Pea flower; the flat, membraneous appendages of some seeds, as those of many Conifers and the Maples.

Winter Aconite. See *Eranthis.*

Winter-berry, Black Alder. See *Prinos* and *Ilex.*

Winter Bloom. A common name for *Hamamelis Virginica.*

Winter Cherry. A name given to *Physalis Alkekengi.*

Winter Cress. (*Barbarea vulgaris.*) This is the common Winter Cress, a plant which is sometimes used as a salad, but is rarely cultivated. The species was probably introduced and is quite common in the North and West.

Winter Daffodil. *Sternbergia lutea.*

Winter Flowering Plants. The most desirable plants for winter flowering may be divided into the two sections, usually designated green-house and hot-house plants; the former requiring a night temperature of from forty-five to fifty degrees, while the latter will not thrive in a lower night temperature than from sixty to sixty-five degrees. Whether the plants are grown in the parlor or sitting-room of a private dwelling, or in a green-house, specially constructed for their culture, the conditions should be as nearly as possible the same; that is a uniformity of temperature and an avoidance of dry atmosphere. It is easy enough in the green-house to get a properly humid atmosphere by sprinkling the paths with water; but in a room in the dwelling-house, the only thing that can be done is to see that some method of evaporating water to supply a moist atmosphere is attached to the stove, furnace, or whatever may be the source of heat. If plants are kept in a sitting-room or parlor, an east, southeast or south aspect should be chosen. Plants of the class that may be grown at an average temperature of fifty degrees at night are Azaleas, Abutilons, Ageratums, Carnations, Cinerarias, Catalonian and Cape Jessamines, Camellias, Callas, Chorizemas, Geraniums of all kinds, Hyacinths, Polyanthus, Narcissus, Early Tulips, Cyclamens, Paris Daisies, Fuchsias, Mahernias, Primulas, Stevias, Roses and many other species known generally as green-house plants.

Of the second class, or hot-house plants, we name the following: Begonias, Bouvardias, Clerodendrons, Euphorbias, Epiphyllums Heliotropes, Poinsettias, many of the hardier Orchids, etc. The many species of Palms, Pandanus, Ficus, Crotons, Ferns, and other plants grown for their ornamental foliage, also thrive better in a warm temperature, though many plants will do well in either; but we make this distinction as a guide to those having a choice of temperature, in order that they may select the plants that are best adapted to that at their command. In a green-house, particularly if heated by a flue, there is often a difference of five or ten degrees between one end and the other; and in such a case the plants named in the first class must be placed at the cool end, and those of the second class at the other.

One of the most troublesome pests of plants grown in the green-house or the sitting-room in winter is the Aphis, or "Green Fly," as it is termed. There is no difficulty in getting rid of it in the green-house, when it is separate from the dwelling; all that is necessary is to get some tobacco stems (such as are thrown out as refuse, by cigar makers), and sprinkle them with water so that they become slightly damp. About half a pound or so for a green-house twenty-five by twenty feet is placed over a small handful of shavings, only enough to light the dampened tobacco, as too many shavings might injure the plants by smoke. The burned tobacco stems give out a smoke that is quickly fatal to the "Green Fly." To thoroughly prevent the least appearance of this insect the green-house should be fumigated every four or five days. If the green-house is attached to the dwelling, so that the

tobacco smoke would find its way into the rooms, recourse may be had to another remedy: take the same waste tobacco stems and steep them in water until the liquid is of the color of strong tea. With this water syringe the plants freely twice a week. Another plan is to sprinkle the leaves with water and then shake snuff or tobacco dust over them.

The "Red Spider" is another pest to winter-blooming plants, even worse than the Aphis, and wherever it is seen you may be certain that the atmosphere has been too dry, and very likely the temperature too hot, as it is rarely found in a cool, damp atmosphere. The treatment for this insect in the greenhouse is copious syringings with water; but where only a few plants are grown in the house it is best to go over the leaves, especially on the under side, with a wet sponge or a brush. When the plants are not too large to handle easily, if they are dipped into water at a temperature of 140 degrees, they will be immediately cleared of all their insect enemies, not only without the least danger to the most tender foliage, but, as the leaves get a good cleansing, with manifest advantage to their well-being. The Red Spider is so minute that it is hardly distinguishable by the naked eye, but its destructive effects are quickly perceivable, as the leaves upon which it works soon become brown, and if they are closely examined, particularly the under side, the minute insect will be seen in great numbers.

Another troublesome insect among plants that are grown in a high temperature is the "Mealy Bug." The insect is flat, and whitish brown, usually nestling at the axils of the leaves, where it is covered with a white powder, making it easily distinguishable. This is one of the most annoying of all insects that attack plants, and until a few years ago no certain remedy was known; but we have now in "Fir Tree Oil," mixed in the proportion of one pint to ten gallons of water, and syringed on once a week, a certain remedy against mealy bug, scale, red spider, and, in fact, nearly all insect life. The use of it must be continued once each week, or the remedy will not be effectual. Where only a few plants are grown the same remedy can be applied with a soft brush or sponge on the leaves. (See Insecticides.)

In plant growing in pots, nothing indicates so much the skill and knowledge of the cultivator as handsome, healthy plants in small sized pots; amateur's conservatories are sometimes more conspicuous for the show of red flower pots than for green leaves and gay flowers. There is no set time for repotting soft-wooded plants, as Geraniums, Fuchsias, Coleus, etc.—many need changing every two or three months, while hard-wooded plants, such as Camellias, Azaleas, etc., may probably need it but once every year or once every two or three years. Hard-wooded plants are greatly benefited by giving them a top dressing of fresh earth mixed with a little bone-dust two or three times a year. Amateurs invariably overpot their plants. In repotting, many plants will be found to have but few roots; these require a portion of the ball removed—place them in smaller pots, encourage them to make new roots, and in a short time they will have fine, healthy tops. The proper way for potting plants is, after they have been given proper drainage, put in a little soil (care being taken to have the plant a little below the surface of the pot, sufficient to allow for watering); place your plant in the centre of the pot with one hand and with the other heap up the soil loosely in the pot; give the pot a sharp rap, pressing the soil with the thumb firmly around the plant. In potting large plants, such as Camellias, Azaleas, etc., a flat stick must be used to firm the soil around the plant; otherwise it will not be packed as firmly around the edges as is essential for good results. (See Potting.)

The rapid growth of plants of every kind, when the roots are confined in a small pot, soon exhausts the soil, and it is often necessary to apply manure in a liquid state to keep the plant in good condition. As a general thing, we use none in our own practice, preferring to shift the plants into fresh soil at the proper time. When, however, it is inconvenient to shift winter-flowering plants into larger pots, they will be greatly benefited by stirring up the soil on the surface of the pots to the depth of an inch or so, or down to where the young roots appear, replacing it by rich, fresh soil to which one-twentieth of bone-dust has been added. Guano or other concentrated manures may also be advantageously applied in a liquid form, but the safest and best of all liquid manures is that made from cow-dung, it will never hurt the most tender plants; like all other liquid manures it should only be applied when the pot is well filled with roots, and the soil is moderately dry. (See Manures.)

Wintergreen. See *Gaultheria* and *Pyrola.*

Wintergreen Chickweed. See *Trientalis Americana.*

Wista'ria. Grape-Flower Vine. Named in honor of *Caspar Wistar*, once Professor of Anatomy in the University of Pennsylvania. Nat. Ord. *Leguminosæ.*

A small genus of hardy, deciduous plants, unquestionably the most ornamental, hardy, flowering climbers we possess. Their lovely panicles of dark purple, light purple, and pure white flowers, single and double, produced in the most wonderful profusion under almost any circumstances, are altogether without a rival. With one exception, they are all natives of China and Japan. *W. Sinensis* was introduced in 1818, and for many years was grown as a green-house plant, until it was accidentally found to be hardy. In 1844, *W. Sinensis alba*, a variety with pure white flowers, was originated. A variety with double flowers was introduced from Japan, its native country, in 1869, by Francis Parkman, of Boston. The flowers of this species are quite fragrant, and very beautiful. It is still quite rare. There are several other species or varieties from the same countries, all meritorious. *W. magnifica* is a very fine late-flowering variety with purple flowers. The Japan Wistarias are much finer than the Chinese. A few years since Mr. Thomas Hogg sent home from Japan a very choice collection, and among them *W. Japonica*, with purple flowers, *W. Japonica alba*, with white flowers, *W. longiracemosa*, purple, with panicles exceeding thirty inches in length, also a double variety of this, with fragrant flowers. In addition to these, he sent a species with glossy leaves

WIGANDIA.

YUCCA FILAMENTOSA.

WISTARIA SINENSIS.

WALLFLOWER (DOUBLE).

ZAMIA INTEGRIFOLIA.

WEIGELIA ROSEA.

ZEPHYRANTHES TREATIÆ.

ZAUSCHNERIA CALIFORNICA.

ZEA JAPONICA VARIEGATA.

ZEPHYRANTHES ROSEA.

ZEA MAYS (INDIAN CORN).

ZINNIA.

dotted with gold; and another species which grows only three or four feet high, and flowers in July and August. *W. frutescens*, a native species, with bluish-purple flowers, of which there is also a white variety, is common from Virginia to Illinois and southward. It is an elegant plant of similar habit, though not quite so productive of flowers, and, unlike the other species, the flowers are developed with the foliage. The English sparrow is very fond of the buds of the Wistaria, and sometimes robs the plant of much of its beauty. All the *Wistarias* are increased readily from seeds or from layers. Syn. *Glycine.*

Wista'ria. Tuberous-rooted. A common name for *Apios tuberosa.*

Witch or Wych Elm. *Ulmus montana.*

Witch or Wych Hazel. See *Hamamelis.*

Witches' Fingers. A popular English name for *Digitalis purpurea.*

Witches' Thimble. A common name for *Silene maritima.*

Witch Knots. This name is given to the curious tufted bunches of small twigs that frequently occur on the larger branches of Birch, Plum, Horn-beam and other trees. The twigs are usually swollen, and both they and the sickly-looking leaves upon them are duller green than usual, and frequently show a slight velvety surface. They are the work of very minute Fungi, belonging to a lowly group of *Ascomycetes.* The mycellium of the Fungi lives on the tissues of the leaves and bark of the host-plants, and the velvety appearance results from the outgrowth over the whole epidermis of their organs of reproduction.

Witheri'ngia. Commemorative of *W. Withering*, a British botanical author, 1776. Nat. Ord. *Solanaceæ.*

A small genus of shrubs or small trees, natives of South and Central America and the West Indies. The species are now mostly included under *Solanum.*

Withe-Rod. A common name for *Viburnum nudum.*

Withy. *Salix viminalis* and *S. fragilis.*

Witse'nia. In honor of *M. Witsen*, a Dutch patron of botany. Nat. Ord. *Iridaceæ.*

A small genus of green-house, herbaceous plants, with showy blue, purple, or yellow flowers, natives of the Cape of Good Hope. *W. corymbosa*, introduced from southern Africa in 1803, closely resembles the *Iris*, but has small flowers. It flowers during summer, and is propagated by division.

Woad. Dyer's. A common name for *Isatis tinctoria.*

Woad-Waxen or Wood-waxen. One of the common names of *Genista tinctoria.*

Woad. Wild. *Reseda luteola.*

Wolf-berry. The popular name of *Symphoricarpus occidentalis.*

Wolf's-bane. See *Aconitum.* Known also by the common name of Monk's-hood.

Wolf's Claw. A common name for *Lycopodium clavatum.*

Wood Ashes. See Fertilizers.

Wood Betony. The common name of *Pedicularis Canadensis*, which see.

Woodbine. The popular name of *Lonicera grata*, one of our native Honeysuckles. A name also inappropriately applied to *Ampelopsis quinquefolia* and *Bignonia radicans.*

Wood Fern. The genus *Aspidium*; also a name applied to *Polypodium vulgare.*

Woodfo'rdia. Named for *J. Woodford*, who wrote an account of the plants around Edinburgh, Scotland, in 1824. Nat. Ord. *Lythraceæ.*

W. floribunda, the only species, is a low, shrubby plant, with long, spreading branches and bright scarlet flowers in short panicled cymes, on axillary peduncles. It is a native of India, and requires a stove-house to grow it to perfection. It can be increased by cuttings or seeds.

Wood Grass. A common name of some of the varieties or species of *Sorghum*, or Broom Corn.

Wood Lily. A common name for *Pyrola minor* and various species of *Trillium.*

Wood Nettle. See *Laportea Canadensis.*

Wood Pea or Wood Vetch. *Orobus sylvatica.*

Woodruff. See *Asperula.*

Wood Rush. See *Luzula.*

Wood Sage. See *Teucrium.*

Wo'odsia. Named in honor of *Joseph Woods*, a British botanist. Nat. Ord. *Polypodiaceæ.*

A small genus of very beautiful, low-growing Ferns. Several of the more beautiful species are natives of this country, and are common in the mountains, north and west. Several species are also found in Europe and Brazil. They are easily grown in the green-house, and are increased by division or from spores.

Wood Sorrel. See *Oxalis.*

Wood Violet. A common name for *Viola sylvatica.*

Woodwa'rdia. Chain Fern. Named in honor of *Thomas Jenkinson Woodward*, an English botanist. Nat. Ord. *Polypodiaceæ.*

Very handsome native and exotic Ferns of easy culture. Some of the species produce little hairy bulbs at the axils of the leaves, which either drop off and strike root in the ground, or vegetate while attached to the parent plant, a feature that is common in many other Ferns.

Woolly Beard Grass. See *Erianthus.*

Working Roots. This term, we believe, was first used by the author in Practical Floriculture, to distinguish the young white roots emitted from the dry or old roots, and is well applicable from the fact that it is only when these young white roots are emitted that a plant begins to grow, the buds or shoots starting simultaneously with these young roots. For example, when we take a dormant Rose that has been grown in a pot, no matter how well it may be supplied with old roots, there is no healthy development of leaves and flowers until the emission of young roots. When we plant out such plants as Celery, Cabbage or Strawberries, in the garden, the young or "Working Roots" emitted from the main roots are certain indications that the plant has started, and that their growth and future development is fairly assured against drought or other causes; but if the "Working Roots"

are not emitted, then there is yet danger of the plants failing.

Worm Grass. See *Spigelia.*

Wo'rmia. Named in honor of *O. Wormius*, a Danish naturalist. Nat. Ord. *Dilleniaceæ.*

A genus of very showy trees, some of them growing to a very large size, natives of the Malayan Peninsula, Ceylon, Australia and Madagascar. *W. Burbridgei*, from Borneo, the finest species yet in cultivation, has broad, handsome leaves, contracted and decurrent, into a very broad petiole, which expands, and is amplexicaul at the base. The pale, golden yellow flowers are three inches in diameter, borne on a simple peduncle two to four inches long. It is much valued also for its excellent timber, which bears some resemblance to Oak. Syn. *Lenidia.*

Worms or Caterpillars. Popular names for *Scorpiurus vermiculata.*

Worm Seed. The seed of *Chenopodium anthelminticum.* The utricle which surrounds the seed contains a volatile oil, which is considered a worm-destroying medicine.

Wormwood. See *Artemisia.*

Wri'ghtia. Palay or Ivory Tree. Named after *William Wright*, a Scotch physician and botanist. Nat. Ord. *Apocynaceæ.*

A genus consisting of shrubs or small, sometimes scandent and ærial-rooting trees, natives of the eastern hemisphere, ranging from Silhet to Nepal and western Australia. Flowers red, white or yellow, in terminal or sub-axillary, sessile cymes. *W. tinctoria* furnishes an inferior kind of indigo, and the wood, which is pure white, close-grained and ivory-like, is highly valued for turning, carving and inlaying. They grow well in a compost of loam and leaf-mould and are readily increased by cuttings.

Wulfe'nia. Named in honor of *F. X. Wulfen*, a botanical author. Nat. Ord. *Scrophulariaceæ.*

A small genus of perennial herbs with thick rhizomes, natives of the mountains of central Europe and Asia. They are well adapted for the rock-garden or flower-border, their beautiful blue flowers being very ornamental when in full blossom. *W. Carinthiaca* is a remarkably dwarf, almost stemless, evergreen herb, twelve to eighteen inches high, bearing, in summer, showy spikes of purplish-blue, drooping flowers. It is found only on one or two mountains in Carinthia. *W. Amherstiana*, from the Himalayas, is another very showy, perfectly hardy species, growing freely in any position in the rock-garden, but preferring a shady spot and a light, rich soil. They require to be protected by a frame in winter, and are propagated by division or seeds.

Wu'lffia. Named in honor of *John C. Wulff*, author of "Flora Borussica." Nat. Ord. *Compositæ.*

A small genus of tropical American perennial herbs, with yellow or orange-yellow flowers. *W. maculata*, the only species introduced, is of easy culture in any light soil, and may be increased by seeds or by division.

Wu'rmbea. Named in honor of *F. Van Wurmb*, Secretary to the Academy of Sciences at Batavia. Nat. Ord. *Melanthaceæ.*

A genus of bulbous or tuberous green-house plants, natives of southern Africa and Australia. *W. campanulata*, the best known species, and its varieties are very showy and interesting when in flower. They succeed well in a compost of sandy peat and loam, and are easily increased by seeds or by offsets.

Wych Elm. *Ulmus montana.*

Wye'thia. Named after *N. B. Wyeth*, the discoverer of this genus in northwestern America. Nat. Ord. *Compositæ.*

A genus of hardy, perennial plants, of which *W. angustifolia* is the only species of interest. None of them are of any horticultural interest.

X.

Xanthi'sma. From *xanthisma*, yellowness; alluding to the color of the flowers. Nat. Ord. *Compositæ.*

X. Texanum, the only species, is a showy, hardy annual or biennial, with heads of bright yellow flowers. Seeds may be sown in the open border in April. Syn. *Centauridium.*

Xa'nthium. From *xanthos*, yellow; the plants were formerly used by the Greeks to dye their hair. Nat. Ord. *Compositæ.*

A genus of coarse-growing, annual plants, principally weeds; of no horticultural value.

Xantho'ceras. The only species, *X. sorbifolia*, is a low-growing tree, a native of the mountains of northern China, belonging to the natural order *Sapindaceæ.*

It is a beautiful tree, with leaves resembling those of *Pyrus Aucuparia;* the flowers white, with a purple eye, and a yellow spot at the base of each petal. It is still very rare in gardens.

Xanthorhi'za. (Some adopt the orthography *Xanthorrhiza*, following the analogy of *Xanthorræa*, etc.) Yellow Root. From *xanthos*, yellow, and *rhiza*, a root; the roots being of a deep yellow color. Nat. Ord. *Ranunculaceæ.*

X. apifolia, the only known species, is an interesting, half-hardy, evergreen shrub, with pretty, dark-purple flowers in early spring. It is common along the mountains from Florida northward. It is propagated by suckers.

XAN

Xanthorrhœ'a. Black Boys, Grass-tree. From *xanthos*, yellow, and *rheo*, to flow; alluding to the yellow juice. Nat. Ord. *Liliaceæ*.

Amongst the many curious forms of the vegetable kingdom, the Grass-tree of Australia is one of the most interesting, and forms a conspicuous feature in the landscape of that country; most of the species having thick trunks, like those of Palms, covered with a dense coating formed of the persistent bases of old leaves, glued together by the red or yellow resin with which these plants abound, and usually burnt and blackened outside by bush-fires. The leaves are long, wiry and grass-like, and are borne in a dense tuft at the top of the stem and hang down gracefully all around it; their long flower-stalks rising out of the centre, and sometimes growing as high as fifteen or twenty feet, bearing at the top a dense, cylindrical flower-spike, resembling that of the *Typha*, made up of a mass of scales out of which the flowers protrude. In general, its presence is indicative of a poor soil, therefore it is one of those plants which give life to the sterility of a great portion of Australia. When the plants have been denuded of their leaves and their bodies blackened by the bush-fires, they have been compared to, and even mistaken for, black men holding spears, hence their colonial name, Black Boys. Their leaves afford good fodder for cattle, while the natives eat the tender white centre of the top of the stem.

Xanthoso'ma. From *xanthos*, yellow, and *soma*, a body; alluding to the large, lobed, depressed, yellow stigma. Nat. Ord. *Aroideæ*.

A genus of about twenty-five species of milky, perennial herbs, with erect root-stocks, arrow-shaped leaves, and a yellow spathe rolled round at the base. They are natives of tropical America, and some of the species are useful as summer decorative plants. Propagated by cutting up the root-stock into small pieces and starting them in heat.

Xanthoxyla'ceæ. A tribe of Nat. Ord. *Rutaceæ*.

Xantho'xylum. Prickly Ash, Toothache Tree. From *xanthos*, yellow, and *xylon*, wood; the roots are yellow. Nat. Ord. *Rutaceæ*.

This is a rather extensive genus, having a wide geographical range, with representatives in most of the tropical countries of the world and in some parts of the temperate regions. The species differ considerably in appearance, some being very large trees, while others are erect or climbing shrubs; and they are often furnished with prickles on their branches and leaf-stalks. The leaves are alternate and compound, either pinnate (either with or without an odd terminal leaflet), trifoliate, or rarely reduced to a single leaflet, the leaflets being usually marked with pellucid dots. Their flowers are small, unisexual, and disposed in variously formed axillary or terminal panicles. The ripe fruits split into two pieces, and contain one or two shining black seeds. The fruits of most of the species have an aromatic, pungent taste, like pepper. Those of *X. piperitum*, a Japanese species, are called Japan Pepper; and those of *X. hastile* are the Tej-bul of northern India, where they are used for intoxicating fish. The genus is represented in the United States by a few species. *X. Americanum*, Northern Prickly Ash, is a prickly shrub with yellowish-green flowers, which appear before the leaves. It is remarkable for its pungent qualities. The bark, when chewed, is said to cure the toothache; whence one of its popular names, Toothache Tree. *X. Carolinianum*, the Southern Prickly Ash, is a small tree with very sharp prickles, found on the coast of Virginia and southward. Syn. *Zanthoxylum*.

XIM

Xera'nthemum. From *xeros*, dry, and *anthemon*, a flower; alluding to the dry nature of the flower; which retains its form and color for years. Nat. Ord. *Compositæ*.

Hardy annuals of the easiest culture, merely requiring to be sown where they are desired to bloom. The flowers, from their peculiar dry character, may be preserved a very long time after they are cut from the plants, and this circumstance has given rise to the English name, Everlasting. The several species are natives of the south of Europe and the Levant. Some of them have been under cultivation more than two hundred years. Sow through April and May in the open border, or in a hot-bed, and transplant in March.

Xerone'ma. From *xeros*, dry, and *nema*, a thread; the filaments dry and persistent. Nat. Ord. *Liliaceæ*.

X. Moorei, the only species, is an elegant and interesting stove-house perennial, introduced from New Caledonia in 1878. It grows about two feet high with the leaves clustered at the base of the flower stem, bearing erect, bright crimson flowers, about half an inch long. It is readily increased by seeds or by division of the root-stocks.

Xerophy'llum. Turkey's Beard. From *xeros*, dry, and *phyllon*, a leaf; in reference to the dry, grassy leaves. Nat. Ord. *Liliaceæ*.

A small genus of interesting, hardy, herbaceous plants, mostly natives. *X. asphodeloides*, one of the most interesting species, is a native of the Pine barrens of New Jersey and southward. It has long, very narrow, bristle-shaped leaves, which form a dense tuft, from which rises a stem bearing a large raceme of showy white flowers in June. They are propagated by seeds or from division, and succeed well in any dry situation.

Xero'tes. Named after *xerotes*, dryness, because of the aridity of the herbage. Nat. Ord. *Juncaceæ*.

A genus of over thirty species of herbaceous, perennial plants, natives of Australia. They succeed well in light, rich soil and are readily propagated by division. Syn. *Lomandra*.

Ximene'sia. Named in honor of *Joseph Ximenes*, a Spanish apothecary. Nat. Ord. *Compositæ*.

These are interesting Mexican plants of which *X. enceloides* is the best known species. It is now generally included under *Verbesina*, which see.

Xime'nia. Named after *F. Ximenes*, a Spanish Monk, who wrote on Mexican plants in 1615. Nat. Ord. *Olacaceæ*.

A small genus of trees or shrubs, one species of which is widely dispersed over the tropics of both the Old and New World. *X. floribundum*, the species mostly cultivated, has white, fragrant flowers, and bears an edible fruit. It is called by various names, Seaside, Hog, or Mountain Plum, False Sandalwood, etc. The fruits have an aromatic flavor, but are a little rough to the palate. *X. Americana*

is common on all the south Florida Keys as a spreading shrub, sometimes with stout, nearly prostrate stems ten or twelve feet long, and eight or ten inches in diameter at the ground.

Xi'phion. A genus of *Iridaceæ* scarcely differing from *Iris* except in the character of the root-stock, which is a bulb instead of a rhizome. They are natives of the Mediterranean region, Abyssinia, etc., and include several old garden favorites. *X. Sisyrinchium* has been considered the type of a distinct genus (*Gynandiris*); it has been in cultivation since the days of Gerarde, who calls it Spanish Nut and says that it "is eaten at the table of rich and delicious persons in sallads or otherwise." *X. latifolium* (Iris xiphioides) is the English Iris of florists and old writers.

Xylophy'lla. A genus of *Euphorbiaceæ* now included under *Phyllanthus.*

Xylo'steum. A genus now included under *Lonicera.*

Xyrida'ceæ. A small natural order of perennial, rush-like herbs, growing often in watery places. It includes two species, *Abolboda* and *Xyris*, and less than fifty species.

Xy'ris. Yellow-eyed Grass. From *xyros*, acute; the leaves terminate in points. Nat. Ord. *Xyridaceæ.*

A genus of curious plants, mostly indigenous, though some are natives of tropical Asia and Africa. They are all sedge-like plants, with narrow radical leaves, and small flower-heads terminating the simple scapes, the yellow petals being very fugacious. They are of no special interest. *X. operculata*, introduced from Australia in 1804, is the most showy species and is generally cultivated as a green-house perennial.

Y.

Yam. The common name of the large, tuberous roots of several species of *Dioscorea*, used as food. See *Dioscorea.*

Yang-Mae. *Myrica Nagi*, a sub-acid, esculent fruit of Japan and China, somewhat resembling the fruit of the Arbutus. It is probably identical with *M. integrifolia.*

Yard Grass. A common name for the genus *Eleusine.* It is also known as Crab Grass. See *Eleusine.*

Yarrow. See *Achillea millefolium.*

Yaupon. The name of a tea or drink made from the leaves of the *Ilex Cassine* by the North Carolina Indians.

Yellow Berries. The dried, unripe berries of *Rhamnus infectorius*, imported from the south of Europe for the use of dyers.

Yellow-eyed Grass. The common name of the genus *Xyris*, a curious rush-like plant, common in New Jersey and southward. See *Xyris.*

Yellow Iris. *Iris Pseudo-acorus.*

Yellow Jessamine of the Southern States, is *Gelsemium sempervirens.*

Yellow Poccoon. See *Hydrastis.*

Yellow Pond Lily. See *Nuphar.*

Yellow Rattle. See *Rhinanthus Crista-galli.*

Yellow Rocket. *Barbarea vulgaris.*

Yellow Root. See *Hydrastis* and *Xanthorhiza.*

Yellow Star of Bethlehem. *Gagea lutea.*

Yellow Star-flower. *Sternbergia lutea.*

Yellow Sultan. *Centaurea suaveolens.*

Yellow Trefoil. *Medicago lupulina.* An excellent fodder plant when mixed with grasses.

Yellow Weed. Dyer's. *Reseda luteola.*

Yellow Wood. *Cladrastis tinctoria*, or *Virgilia lutea*, a small and handsome deciduous tree, with showy white flowers drooping from the ends of its branches, common on rich hillsides, from Kentucky southward.

Yew. See *Taxus.*

Youth and Old Age. A popular name of the *Zinnia*, which see.

Youth-wort. An English name for *Drosera rotundifolia.*

Yu'cca. Adam's Needle, Spanish Bayonet, Bear Grass. *Yucca* is the name of the plant in Peru. Nat. Ord. *Liliaceæ.*

An extensive genus of evergreen plants, closely allied to *Dracæna* and *Cordyline*, with leaves somewhat like the Aloe. *Y. filamentosa*, popularly called Adam's Needle, is common from Virginia southward to Mexico and Central America, and is a beautiful plant for cemetery or lawn decoration. Many of the species are hardy enough to withstand our winters North, and are desirable plants, as well for the flowers as the foliage. The flowers are produced on an erect, branching spike, often six feet high, proceeding from the heart of the plant. It is not uncommon for a single spike to furnish three hundred blossoms, which are creamy white and very showy. The half-hardy or tender species may be grown in pots or tubs and kept dormant through the winter in a cellar or room free from frost. They grow freely in any soil, preferring a light, sandy one. *Y. aloifolia variegata* is one of the most beautiful of our green-house, ornamental-leaved plants. Its propagation, which is by cuttings, is slow, and hence it is always a scarce and expensive plant. *Y. filamentosa variegata* somewhat resembles it in its young state, and has occasionally been sold for it; but it is far inferior. Most of the herbaceous species of the genus seed freely, and are thus rapidly increased. The bruised roots of all the Yuccas were formerly used very extensively by the natives on the Pacific slope as a substitute for soap, and at the present time it is not an uncommon sight to see the semi-civilized Indian and her Mexican half-sister still using this vegetable soap, which they call "Amole," in the Mexican villages, and as far north as Utah.

Yulan. *Magnolia conspicua.*

Z.

ZAL

Zala'cca. Said to be the name of this genus in the Moluccas. Sometimes spelled Salacca. Nat. Ord. *Palmaceæ.*

A genus composed of seven or eight species of stemless Palms, natives of Assam and the coast of Burmah and Malacca, mostly growing in large masses in wet places, and forming dense tufts, rendering the jungles almost impassible. They have long, pinnate leaves, which, being very coriaceous, render them good subjects for decorative purposes.

Zaluzia'nskia. Named after *Dr. Adam Zaluziansky*, a botanist of the seventeenth century. This is now given as the correct name of the genus *Nycterinia.*

Za'mia. From *zamia*, loss; in allusion to the barren appearance of the male flowers. Nat. Ord. *Cycadaceæ.*

An extensive genus of very beautiful and remarkable plants, intermediate between the Ferns and Palms. They are natives of the West Indies, Central America, the Cape of Good Hope and southeastern Africa, where they frequently constitute a conspicuous feature in the vegetation. These extraordinary plants are remarkable for their bony fronds or leaves, which are for the most part armed with spines or sharp angles. The species, *Z. horrida*, has thorns several inches in length and as hard as horn. Several of the species are known in cultivation and are objects of much interest. They require a hothouse, and should be grown in sandy loam. Rapid progress in growth is material to the perfect development of the leaves, and this is only secured by heat and moisture. They may be propagated by suckers, but these, with all other Cycads, are now largely imported by firms in New York and other large cities, mostly from Central America, and thus plants are obtained at once from their native habitat that would take many years to grow by the slow processes of artificial propagation. When received they are, of course, in a dormant state, without roots or leaves, and should be placed in partially damp moss, in a temperature of 70 degrees, until they begin to grow.

Zante Currant. This is not a Currant as is generally supposed from its name, but rather a Grape, the fruit of a variety of *Vitis Vinifera*, commonly called Black Cornith or Zante Currant. It is a seedless Grape, produced in long, slender bunches; a native of the Levant.

Zante-wood. The wood of *Chloroxylon Swietiana* and *Rhus Cotinus.*

Zanthorhi'za. See *Xanthorhiza.*

Zanthoxy'lum. See *Xanthoxylum.*

Zapa'nia. A name applied to that section of the genus Lippia, in which are placed those species which have a flattened calyx and capitate flowers. They are creeping, Verbenaceous plants, producing an abundance of flowers in umbels in August and September; natives of South America.

Zauschne'ria. Californian Fuchsia. Humming-bird's Trumpet. Named in honor of

ZEB

M. Zauschner, a German. Nat. Ord. *Onagraceæ.*

Z. California, the only known species, is a hardy, herbaceous plant, native of California. It is of branching habit, and produces large racemes of Fuchsia-like flowers, bright crimson and very showy. It makes a handsome pot plant, and is also very showy in the border. Propagated by division or from seed. Introduced in 1847.

Ze'a. Maize, Indian Corn. Linnæus named this genus from *zao*, to live; in reference to the nutritive properties of the plants. Nat. Ord. *Graminaceæ.*

Indian Corn, *Zea Mays*, is unquestionably an American plant, having been found under cultivation by the Indians on the discovery of the New World. It is said to grow wild in some of the West Indian Islands and in Central and South America. There is only one ascertained species, although numerous varieties have been produced. The many varieties are so distinct in their general habit of growth, size and shape of the kernel as to raise the question of their being distinct species, which, however, is not probable. We know of no other plant that so readily adapts itself to circumstances, or one that will so completely change its habit of growth in so short a time. The writer once brought a few ears of Corn from near Quebec, the farthest point north that Corn is known to ripen. The stalks from which the ears were taken were not three feet high, yet each produced two small ears of very hard Corn of excellent quality. This seed was sown in central New York at the same time and under the same conditions as other Corn, only in a separate field. This crop came to maturity in less than sixty days after planting, ready for the harvest. The next year the best seeds of the crop were sown, in confidence of similar results; but, on the contrary, it adapted itself to the climate, and took the same length of time to grow and ripen as the common sorts, and it also grew to as great a height, which was fully two feet higher than it grew the first year. From that fact it is easy to see what great changes may be brought about by cultivation. The varieties known as Sweet or Sugar Corn are best suited for use in the unripe state. They have been greatly improved in the past twenty years by careful selection, and thousands of acres of these kinds are grown for canning, particularly the variety known as Stowell's "Evergreen." *Z. Japonica variegata* is a beautifully striped white and green variety and is unsurpassed as a "Variegated Grass." It requires exactly the same culture as the ordinary Maize; though, being variegated, its growth is weakened, and, under the same conditions, it grows one-third lower than the ordinary green sorts. It can be used with fine effect for the "back row" or "centre" of large beds in massing.

Zebra Grass. See *Eulalia Zebrina.*

Zebra Plant. A common name for *Calathea Zebrina.*

ZEB

Zebra Wood. A name given to *Myrtus fragrans* and *Guettarda speciosa;* also to the genus *Omphalobium,* which see.

Zebri'na pendula. A name proposed for the plant, best-known as *Tradescantia tricolor, T. Zebrina* or *Cynanotis vittata.*

Zehne'ria. A synonym of *Pilogyne,* which see. The correct name is now given as *Melothria.*

Zenobi'a. Named after the famous Empress of Palmyra who lived in the third century. Nat. Ord. *Ericaceæ.*

Z. speciosa is a dense growing shrub, about three feet high when fully grown. The flowers, white and wax-like, are in form like those of Lily of the Valley, and are produced abundantly in loose, drooping clusters in summer. It is a native of the Southern States, and, consequently, not quite hardy. It is known in cultivation as *Andromeda Cassiniæfolia* and *A. speciosa.*

Zephyra'nthes, Zephyr Flower. From *zephyros,* the west wind, and *anthos,* a flower. Nat. Ord. *Amaryllidaceæ.*

A very beautiful genus of hardy and half-hardy bulbous plants, natives of the Southern States, South America, and the West Indies. The flowers are white, pink and rose-colored, and are produced singly on slender scapes about six inches high. One of the best species is *Z. Atamasco,* generally known as *Amaryllis Atamasco,* and in our gardens as Fairy Lily. This species has beautiful pink flowers, which are produced in great abundance during the entire summer. The bulbs may be planted in the open border early in spring, and, with slight protection during winter, they may remain undisturbed a number of years. The bulbs are about one and a half inches in diameter and two inches long, and increase rapidly by offsets. It is a native of the southern and southwestern States. *Z. candida,* a species with pure white flowers and small, rush-like leaves, is a native of Lima and Buenos Ayres. The bulbs are quite small, and grow in large clusters. It is very free flowering and nearly hardy, and was introduced in 1822.

Zephyr-Flower. See *Zephyranthes.*

Zi'chya. In honor of *Countess Molly Zichy,* a noble Austrian lady, fond of botany. Nat. Ord. *Leguminosæ.*

These are handsome green-house climbers, closely related to *Kennedya,* from which they are chiefly distinguished by having their flowers arranged in whorls on the end of an attenuated foot-stalk. They require plenty of water, both at the roots and over the foliage in dry, hot weather, and a support for their flexile stems. The trellis should be as large as may be conveniently attached to a pot, as they extend over a considerable space. In the autumn the branches should be pruned closely back, and the plants kept torpid through the winter. The several species that constitute this genus are natives of Swan River, and were introduced in 1834. Propagated by seeds or cuttings.

Zi'ngiber. Ginger. The Indian name. Nat. Ord. *Scitamineæ.*

The most important species of this genus is *Z. officinale,* the roots or rhizomes of which furnish the well-known Ginger of commerce. This plant is believed to be a native of Asia.

ZIZ

It was naturalized in the West Indies soon after their discovery by the Spaniards; indeed, at so early a period that it is scarcely believed to be an exotic, and is supposed to have been found indigenous on the islands. Acosta relates that a person named Francisco de Mendoza first transplanted it from the East Indies into New Spain, where its cultivation was diligently pursued by the Spanish Americans to a considerable extent, as, from the testimony of the same author, 22,053 cwt. were exported thence to Europe in 1547. This plant is now extensively cultivated in the West Indies, especially in Jamaica, from whence we receive our main supply. There are several varieties of Ginger known in commerce; they are, however, of the same species, as the white and black ginger simply indicate a different method of preparation. Ginger is also largely grown in the East Indies and Africa, but not of so good a quality as that of the West Indies.

Zingibera'ceæ. A tribe or sub-order of *Scitamineæ.*

Zi'nnia. Named in honor of *John Godfrey Zinn,* a Professor of Botany at Gottingen. Nat. Ord. *Compositæ.*

An extensive genus of hardy annuals, natives of Mexico. When first introduced the Zinnia received but little attention, as the flowers were single, the colors not so bright, nor the plant so effective as the double varieties now under cultivation. The double varieties were first exhibited by Messrs. Vilmorin in Paris, in 1861. They originated in India from the common single Mexican varieties, and the seeds were sent to France in 1858. Great improvement has been made within the last ten years in this flower, and our own florist and seed-growers have been foremost in this work. The finest strains of this flower are now to be had of the seed-growers near New York. Some of the varieties are truly magnificent; the dull, dingy colors have given place to bright scarlet, clear rose, pure white, orange, canary yellow, etc., and the flowers are perfect in shape, and evenly imbricated like a Camellia. Zinnias require but little attention, and will grow well almost anywhere. For perfection of flower, the seed should be sown early in a hot-bed or the green-house, and once or twice pricked out before planting in the open border. Set the plants two feet apart each way, and they will completely cover the ground early in summer. They will commence to flower in June, and remain until killed by frost. The flower lasts a long time, looking cheerful until the seed is quite ripe. The fact of the flowers remaining so long perfect has given the plant one of its common names, "Youth and Old Age."

Ziza'nia. The Greek name of *Darnel.* The modern plants have no relation to the ancient, being natives of America. Nat. Ord. *Gramineæ.*

These are native plants. *Z. aquatica,* a large, reed-like, aquatic plant, is quite common in marshes and on the margins of waters at the South and West, and was formerly largely collected by the Indians for food. It is a favorite food with wild ducks and other aquatic birds during the fall and winter months, and is a familiar object to sportsmen. A correspondent of the "American

Agriculturist," 1878. Mr. R. Valentine, of Wisconsin, says he has sold a thousand bushels of this Wild Rice during the past five years. The "Agriculturist" says: "It is the thick growth of this Rice that makes the borders of the Delaware such a favorite resort for gunners in the Reed Bird season, and elsewhere it attracts numerous ducks. Mr. V. says that he has sent the seeds to nearly every State and Territory, to be planted along water courses to attract wild fowl. It is also sown in artificial fish ponds to afford cover and shade for the young fry, a purpose for which it is especially suited. It succeeds best where there is a muddy bottom, and six inches to two feet of water, and care should be taken to place it where its roots will be covered with water at all times." Syn. *Hydropyrum.*

Zizi'phora. From *Zizi*, which is said to be the Indian name of the flower, and *phoreo*, I bear. Nat. Ord. *Labiatæ.*

A genus of about twelve species of hardy, dwarf, annual herbs, or diffuse sub-shrubs; natives of Central and Western Asia, and the south Mediterranean region. Some three or four species are in cultivation, and are of interest in a herbaceous collection.

Zi'zyphus. Jujube. *Zizouf*, in Arabic, is the name of the *Lotus.* Nat. Ord. *Rhamnaceæ.*

An interesting genus of plants, inhabitants of both hemispheres. They are all very pretty, and deserve to be grown in every collection. The green-house and hot-house species do well with ordinary treatment. The genus is chiefly characterized by having a fleshy, berry-like fruit, containing a one, two or three-celled stone, with a single flattened seed in each. The species are mostly stiff shrubs, or sometimes small trees with more or less spiny branches, their alternate, three-nerved leaves being furnished with one or two thorny stipules. The fruits of several of the species have an agreeable flavor. *Z. vulgaris*, the best known species, when fully developed attains a height of thirty feet. The fruits of this species are commonly eaten in Europe, both in a fresh and a dried state, and afford the Jujubes of the shops, or rather used to, for they are now chiefly made up of gum and sugar, and a little tartaric acid, without the Jujubes. The fruits are rather acid when fresh, but when dried they are more agreeable, and are given to allay cough. Perhaps the most useful purpose to which this species can be applied is a hedge plant. Mr. William Smith, the superintendent of the Botanic Garden at Washington, D. C., has been experimenting with it for a number of years, and thinks it has no equal as a hedge plant, and predicts that it is certain to be largely used for that purpose. It is perfectly hardy at Washington, and it is Mr. Smith's opinion that it is likely to prove hardy a great deal farther north. *Z. Jujuba*, an East Indian species, yields an excellent dessert fruit, and is largely cultivated by the Chinese, who recognize a great number of varieties, differing in the shape, color and size of the fruits. Those of one variety are called Chinese Dates, from their resemblance to that fruit. *Z. Lotus*, an African species, is one of the plants supposed to have yielded the seductive sweet fruits from which the ancient Lotophagi took their name. Another African species, *Z. Baclei*, is the Lotus mentioned by Mungo Park as being used for making into bread, tasting like gingerbread, and also for the preparation of a pleasant beverage. *Z. spina-Christi* is supposed by some to have furnished the crown of thorns put on our Saviour's head. Propagated by cuttings or from seed. First introduced in 1640.

Zomica'rpa. From *zomo*, a skirt, and *karpos*, a fruit; the pericarp of the fruit, when ripe, bursts at the bottom and remains covering the seeds like a skirt. Nat. Ord. *Aroideæ.*

A small genus whose species are natives of Brazil. The leaves appear before the flowers and are cut into five segments. They make rather pretty, decorative plants, requiring, like all the rest of the family, plenty of water during the growing season. *Z. Pithonium* is regarded as an antidote in cases of serpent bites. The plants grow about a foot high and are increased by seeds, or by division. Introduced in 1860.

Zonal Geranium. See *Pelargonium.*

Zygade'nus. From *zigos*, a yoke, and *aden*, a gland; the glands are arranged in pairs. Nat. Ord. *Liliaceæ.*

A genus of smooth, somewhat glaucous, herbs, with creeping rhizomes or coated bulbs, grass-like leaves, and panicles of rather large, greenish-white flowers. The best known and most ornamental species are all natives of America, from Maine to Mexico. Propagation may be readily effected by division, or by seed.

Zygope'talum. From *zygos*, a yoke, and *petalon*, a petal; in allusion to the adhesion of the segments of the perianth by their bases in the original species. Nat. Ord. *Orchidaceæ.*

A genus of very handsome, free-flowering Orchids, natives of South America. They are terrestrial evergreens, and generally flower during the winter or early spring months, which makes them desirable. The pseudo-bulbs should be well elevated in potting and have plenty of water in the growing season, which is usually from May to September; after which less moisture is required until their season of blooming. They will succeed well in an ordinary green-house, and are propagated by division. Introduced in 1828.

Zygophylla'ceæ. A natural order of shrubs or herbs, rarely trees; natives of the Cape of Good Hope, the Cape de Verde Islands and the Levant. Several of the genera have medicinal properties. The species are widely dispersed and are divided into seventeen genera, including Tribulus, Zygophyllum, and Guaiacum.

Zygophy'llum. Bean Caper. From *zygon*, a yoke, and *phyllon*, a leaf; alluding to the pairs of leaflets. A genus of trees, shrubs and perennial herbs, giving its name to the Nat. Ord. *Zigophyllaceæ.*

The species are natives of the Cape of Good Hope, the Cape de Verde Islands, the Levant and Australia. Their very handsome flowers are red or white, generally with a purple or red basilar spot. Several of the species have medicinal properties; the flower-buds of *E. Fabago* are used instead of capers, and the seeds of *E. coccineum* are employed by the Arabs in place of pepper. Propagated by cuttings or by seeds when obtainable.

GLOSSARY.

BOTANICAL nomenclature being in a great measure descriptive, it has been thought that in addition to the etymological notes on the individual genus names already given, a glossary of the designations of the various species and sub-species would be a useful addition to a book of this popular character, as conveying an intelligible indication of the distinctive features of the plants under consideration. These species-designations stand in relation to the genera as adjective to noun, and being expressed in Latin, follow the grammatical rules of that language in so far that they must agree with the noun in number, gender and case. For instance: adjectives ending in *us* take *a* in the feminine and *um* in the neuter, thus: *altus*, high, masculine; *alta*, feminine; *altum*, neuter. Masculine and feminine adjectives ending in *is* in the neuter usually end in *e*, as *nobilis*, masculine and feminine; *nobile*, neuter. Adjectives ending otherwise than these (for instance, *as*, *es*, *ans*, *ens*, *eps*, *on*, etc.) retain, generally, the same termination for all genders. The designations ending in *oides*, *phylla* and *folia* have been but sparingly used, as they are for the most part self-descriptive; e. g., *anemonoides*, anemone-like; *acanthophylla*, acanthus leaved; *adiantifolia*, adiantum leaved, etc.

A

A in composition signifies without, as aphylla, without leaves, etc.
abbreviata ..... shortened
abortiva ..... imperfect
abscissa ..... clipped
acaulis ..... stemless
accedens ..... yielding
acerba ..... sour
acerosa ..... needle pointed
acicularis ..... needle leaved
acinacifolia ... scimetar leaved
acniopetala ..... sharp petaled
acris ..... biting
aculeata ..... spiny
acuminata ..... sharp pointed
acuta ..... sharp pointed
adnata ..... adhering
adspersa ..... scattered
aduncа ..... hooked
æmula ..... rival
ænea ..... bronzy
æranthe ..... air flower
æsculifolia, horse-chestnut leaved.
æstivalis ..... summer
æstuans ..... glowing
affinis ..... related to
agglomerata ..... collected
aggregata .. gathered together
alata ..... winged
alba ..... white
albicans ..... whitish
albinata ..... white marked
alcicornis ..... elk's-horn-like
alienata ..... foreign
alnifolia ..... alder leaved
alpestris ..... rocky
alveolata ..... honeycombed
amabilis ..... lovely
amara ..... bitter
amblyodon ..... blunt toothed
amœna ..... pleasing
amplexicaulis ... stem clasping
ampliata ..... enlarged
ampullacea ..... flask-shaped
anceps ..... two edged
androgyna ..... hermaphrodite
androus, in words of Greek derivation, refers to the stamens; as, diandrous, two stamened; polyandrous, many stamened, etc.
Anglica ..... English
angusta ..... narrow
angustifolia .... narrow leaved
anisata ..... anise scented
anisophylla .... unequal leaved
annotina ..... year-old
annua ..... annual
annulata ..... ringed
anopetala ..... erect petaled
antherosa ..... large anthered
antherotes ..... brilliant
antiacantha ... opposite spined
apetala ..... without petals
aphylla .... destitute of leaves
apiculata, terminating in a short point or tip.
apifera ..... bee bearing
apiifolia ..... parsley leaved
apoda ..... stemless
apodantha .. stalkless flowered
appendiculata, having appendages.
applicata ..... inclined
aptera ..... wingless
aquatica ..... living in water
aquifolia ..... holly leaved
arachnoidea ..... cobwebby
aranifera ..... spider bearing
arbuscula ..... like a little tree
arborea ..... tree-like
arcuta ..... bent
ardens ..... glowing
arenaria ..... sand loving
areolata, marked out into different spaces.
argentea ..... silvery
arguta ..... sharp
argyrites ..... silvery
argyrophylla .... silver leaved
argyrostigma .. silver spotted
arietina ..... ram's-head-like
arifolia ..... arum leaved
aristata ..... awned
armata ..... armed
armillata ..... braceleted
arrecta ..... erect
articulata ..... jointed
arundinacea ..... reed-like
arvensis ..... field

aspera.....rough
asperrima.....very rough
assimilis.....similar
assurgens.....increasing
atomaria.....dotted
atrata.....blackened
atrosanguinea.....dark red
atrovirens.....dark green
attenuata.....thin, narrowed
augusta.....smooth stalked
aurantiaca.....orange
aurea.....golden
auriculata.....eared
australis.....southern
axilaris, flowering in the axils of the leaves.
azurea.....blue

B

baccata.....berry bearing
bacillaris.....staff-like
barbasca.....bearded
barbata.....bearded
basilaris.....base branching
bella.....handsome
bellidiflora.....daisy flowered
betuloides.....birch-like
bi or bis, as a prefix, means twice; as, bi-articulata, two jointed; bi-aurita, two eared, etc.
bicamerata.....two-arched
bicornis.....two-horned
bidentata.....double toothed
bifida.....half divided
binata..growing two together
bitumenosa.....pitchy
blanda.....charming
borealis.....northern
brachy, from brachys, short; compounded with other Greek roots, as
brachybotrya..short bunched
brachynema, having short filaments.
brachyodon.....short toothed
brachyphylla....short leaved
brachypoda....short stalked
brachypteron. broadly winged
bracteata.....bracted
brevi, short; as, brevistylis, short stemmed.
brevicaulis....short stemmed
brevifolia.....short leaved
buccosa.....inflated
bulbifera.....bulb bearing
bullata.....blistered
butryacea.....buttery
buxifolia.....box leaved

C

caduca.....falling off soon
cæsia.....bluish gray
cæspitosa.....tufted
calamelanos...beautiful, dark
calantha.....beautiful winged
calcarata.....spurred
calcarea....growing on chalk
calceiformis.....shoe-shaped
calendulacea... marigold-like
callosa, furnished with hardened or protuberant spots.
calophylla....beautiful leaved
caloptera....beautiful winged
calura.....beautiful tailed
calycina, large calyx or cup-shaped.
calyculata, having bracts resembling an additional calyx
calyptrata.....covered
campanulata.....bell-shaped
campylacantha.curved spined
cancellata.....latticed
candicans.....white
candida.....white
canescens.....hoary
cannabina.....hemp-like
capilare.....hair-like
capitata....flowering in heads
capreolata.....tendriled
caprina.....goat-like
cardiochlæna...heart-formed
carinata.....keeled
carnea.....flesh colored
carnosa.....fleshy
caryophylla.....clove scented
caryophyllacea. carnation-like
casta.....chaste
cathartica.....purgative
catopteron.downward winged
caudata.....tailed
caudescens.....stemmed
cauliflorus.....stem flowering
cava.....hollow
celatocaulon, concealed stemmed.
centeteria.....many spined
cerasoides.....cherry-like
cerefolia.....chervil leaved
cereola.....waxy fruited
cerifera.....wax bearing
cernua.....drooping
cervina.....stag horned
chlorantha...greenish yellow
chloronema...green threaded
chlorophora.....green dye
chlorophylla.....green leaved
chromatella.....yellow
chrysantha ..golden flowered
chrysoleuca..yellowish white
chrysophylla...golden leaved
chrysostachys..golden spiked
chrysostoma.golden mouthed
chrysotricha...golden haired
ciliaris.....hair fringed
ciliolata.....fringed leaved
cincinnata.....curled
cincta.....girdled
cinerea.....ashy gray
cinnabarina.....vermilion
cirrhosa.....tendriled
citrina.....lemon colored
citrosma.....lemon scented
clavata.....club-shaped
claviculata.....tendriled
clypeata.....buckler-shaped
coartata....crowded together
coccinea.....red
cochlearis.....spoon-shaped
cochleata.....shell-shaped
codonodes.....bell bearing
cœlestis.....sky blue
cœlosperma....hollow seeded
cœrulea.....blue
collina.....growing on hills
colorata.....colored
colpodes.....deeply hollowed
comans.....hairy
communis.....common
commutata.....changed
comosa.....tufted, hairy
complexa.....embracing
complicata....folded together
compta.....decked
conchiflora.....shell flowered
concinna.....neat
concolor.....one-colored
conferta.....cluster flowered
congesta.....crowded
conjugata.....mixed
connata....joined at the base
consobrina.....related
contorta.....twisted
contrayerba.....vermifuge
convoluta.....rolled together
corallina.....coral flowered
cordata.....heart-shaped
cordifolia.....heart leaved
cordigera.....heart bearing
coriacea.....leathery
cornea.....horny
cornigera.....horn bearing
cornuta.....horned
coronata.....crowned
corticicola.....epiphytal
coruscans.....glittering
corymbiflora. cluster flowered
corymbosa... cluster flowered
corynodes....helmet flowered
costata.....ribbed
crassicaulis...thick stemmed
crassipes.....thick stalked
crenulata.....scolloped
crinita.....hairy
crispa.....crispy or curled
cristata.....crested
crocata.....saffron colored
crocea.....saffron colored
cruciata.....cross-shaped
cruenta.....bloody
cryptocarpa....hidden fruited
cucullata.....hooded
cultrata.....knife-shaped
cultriformis.....knife-shaped
cuneiformis....wedge-shaped
cupreata.....coppery
curta.....shortened
cuspidata....abruptly pointed
cyanea.....blue
cyanococca.....blue fruited
cyanophylla.....blue leaved
cyatheaformis....cup-shaped
cymbiformis.....boat-shaped
cymosa....flowering in cymes

D

dædalea.....adorned
daphnites.....glistening
dasycarpa.....thick fruited
dasyphylla.....thick leaved
dealbata.....whitened
debile.....weak
deca, in words of Greek derivation, ten; as, decandrous, with ten stamens; decapetala, etc.
decipiens.....deceiving
declinata..turned to one side
decora.....comely
decumana.....huge
decurrens, prolonged below the insertion, as in the leaves of the thistle.
decussata.....cross leaved
deflexa.....turned downward
delecta.....select
deltoidea..triangular-shaped
demissa.....low

dendroidea..... tree-like
dentata..... toothed
denticulata.....finely toothed
dependens .....hanging
depressa...pressed downward
di, in Greek compounds, two; as, didyma, twin, etc.; digamous, having flowers of two sexes, etc.
diaphana..... transparent
dicarpa..... two-fruited
dichora.....two-colored
dichotoma.....forked
diformis..... two-formed
diffusa ..... spreading
digitata..... finger leaved
dilitata..... swollen
dimidiata.....halved
dimorpha.....two-formed
dioica, bearing female flowers on one plant and male on another.
diphylla..... twin leaved
diptacantha ....double spined
diptera..... two-winged
discoidea.....disk-like
discolor..... ... two-colored
dissecta..... finely divided
dissitiflora... distant flowered
disticha.....two-ranked
diurna.....day flowering
divaricata, obtusely spread asunder
divergens.....leaning
diversiflora..variable flowered
dolabriformis .....axe-shaped
dolichocentra ... long-spurred
dolosa..... deceiving
drupacea....like a stone fruit
dubia.....doubtful
dulcis.....sweet
dumosa ..... low
dura ..... hard
duriuscula .....slightly hard

E

E, or ex, as a prefix, means destitute of; as, ecostata, ribless; exalbuminous, without albumen, etc.
ebracteata..destitute of bracts
eburnea .....ivory-like
echinata .....prickly
edentata.....toothless
edulis..... edible
effusa..very loosely spreading
egregia.....distinguished
elata ..... tall
elegans .....beautiful
emarginata ... notched leaved
eminens ..... showy
ennea, nine; as in
enneandrea .....nine stamens
enneaphylla ..... nine-leaved
ensata.....sword-shaped
epherma ..... transient
epi, in Greek compounds, upon; as, epicarp, the outermost layer of a pericarp, etc.
epigæa, growing on or close to the ground.
epiphylla.growing upon a leaf
equilateral.having equal sides
eriantha.....woolly flowered
ericordes..... heath-like
erinacea..... prickly
eriocarpon.....hairy fruited
eriostemon..woolly stamened
erosa..... bitten
erubescens.....blushing
erythrochæta.....red bristled
erythropa.....red stemmed
erythrophæa.....bright red
esculenta..... edible
etiolata..... blanched
euchila.....beautiful lipped
evecta..... extended
exaltata.....lofty
excelsa..... tall
excisa.....bluntly cut
exculta..... adorned
eximia.....(choice) excellent
exorhiza.....rooting outward
exotica.....foreign
exsculpta.....cut out
exserta, protruding beyond, as the stamens out of the corolla.
exsurgens ..... rising

F

falcata ..... sickle-shaped
falciformis .....sickle-shaped
falcinella.....finely hooked
fallax.....deceptive
farinacea.....mealy
fasciata..... banded
fascicularis..... in bundles
fastigiata..... peaked
fastuosa.....prickly stalked
felosma..... heavy smelling
fenestralis.....window leaved
ferox.....fierce, spiny
ferruginea..... rusty
filamentosa .....thready
filifera.....thread bearing
filipendula, hanging from a thread.
filipes ..... thready
fimbriata..... fringed
firma.....solid
fissa.....divided
fistulosa.....pipe stalked
flabelliformis.....fan-shaped
flaccida.....weak
flagifera.....rod-shaped
flammea.....fiery
flava..... golden
flavescens .....yellowish
flexa ..... bending
floralenta.....slow flowering
floribunda.....many flowered
florida..... flowery
fluviatilis, belonging to flowing water.
fœniculacea..... fennel leaved
fœtida..... stinking
foliolosa ..... slightly leaved
foliosa..... leafy
formosa.....beautiful
fossulata ..... grooved
fragrans ..... fragrant
frondosa .....leafy
frutescens .....shrubby
fruticosa .....shrubby
fulgens ..... brilliant
fulva .....tawny
funesta..... deadly
funifera .....rope bearing
furcata .....forked
furens ..... maddening
furfuracea ..... scaly, mealy
fusca ..... brown
fuscescens.....dark brownish
fusiformis.....spindle-shaped

G

galeata .....helmeted
geminiflora.....twin flowered
gemmata .....twin
gemmipara.....bud bearing
gibberosa .....warted
gibbosa .....protuberant
gigas .....giant
glabella ..... smoothish
gladiata ..... sword shaped
glandulosa ....bearing glands
glauca..milky white, glaucous
glaucina ..... bluish gray
glaber .....smooth
glabrata..... glabrous
glacialis ..... icy
gladiata .....sword-shaped
glastifolia.....wood leaved
glaucescens.....bluish gray
glaucophylla..... gray leaved
globosa....round or spherical
glomerata ..... clustered
glumacea, grass-like-flowered
glutinosa ..... adhesive
glycyphyllos .... sweet leaved
gracillima ..... most graceful
gracilis .....slender
Græca .....Greek
graminea .....grassy
grandiceps .....large crested
grandis..... splendid
grata .....pleasing
graveolens....strong smelling
guttata ..... spotted
gymnandra....naked anthered
gymnocarpa.....naked fruited
gyrosa, turned round like a crook.

H

hæmatocephala....red headed
hæmatodes ..... bloody
hamata .....hooked
harpeodes ... .. scimeter-like
hastata .....halbert-shaped
hebegyna .....blunt styled
hecistophylla, smallest leaved
hepta, the Greek numeral seven, used as a prefix; as, heptandra, seven-stamened, etc.
herbacea, of a soft texture like an herb.
heteracantha...various spined
hetero, in Greek derivatives, unlike; as, heterocarpus, bearing two kinds of fruit, etc.
heterophylla...various leaved
heteroptera...various winged
hexa, in Greek derivatives, six; as, hexandra, having six stamens, etc.
hexagona.....six-sided
hians.....gaping
hippocrepiformis, horseshoe-shaped.
hircina .....goat scented
hirsuta .....very hairy
hirta.....hairy
hirtipes.....hairy stalked

hispida ..... bristly
histionantha.....sail flowered
holosericea ..... all silky
hortensis.....garden
humifusa .....prostrate
humilis .....dwarf
hybrida, a cross breed between individuals of two species.
hyemalis .....winter
hygrophylla..moisture loving
hypo, in Greek derivatives, under, as hypoglottis, under tongued.
hypocrateriformis, salver-shaped.
hypogæa, flowers or fruits borne under ground.
hypophylla.....under leaved
hystrix.....bristly

I

ianthina ..... violet
ignea..... fiery
illustris ..... bright
imbricata ..... imbricated
immarginata ... not margined
immersa, growing wholly under water.
implexa.....interwoven
inæqualis .....unequal
incana .....hoary
incarnata.....flesh colored
incisa .....cut
inclaudens.....never closing
incurva .....bent inward
inermis .....unarmed
iners .....idle
inflata.....swollen
inflexa..abruptly bent inward
infracta.....broken
infundibuliformis, funnel-shaped.
innata .....borne on the apex
inops.....meagre
inquinans....stained flowered
insignis ..... remarkable
integrifolia.....entire leaved
introrsa.....facing inward
invisum.....unseen
involucrata, covered with an involucre.
involuta .....rolled inward
ionoptera.....violet winged
irrorata ..... bedewed
isochroma.....one colored
isophylla .....equal leaved

J

Japonica.....from Japan
jubata .....bearded
juglandifolia ...walnut leaved
juncea .....rush-like

L

labiata .....two lipped
labrosa ..... large lipped
lachnoides.....woolly
lachnopoda.....downy footed
laciniata .....cut leaved
lactiflora .....milk flowered
lacunosa .....pitted
lacustris .....lake loving
lævigata ....smooth stemmed
lævis .....smooth
lagenaria .....bottle-shaped
lanata .....woolly
lanceolata .....lance leaved
lanigera .....woolly
lanipes .....woolly stalked
lanuginosa ....slightly woolly
lasiandra....woolly stamened
lasiantha.....hairy anthered
lasioglossa.....hairy lipped
lateritia ..... brick colored
latifolia .....broad leaved
laxa .....loose flowered
leguminosa,bearing a fruit like a peapod.
leiantha .....smooth flowered
leiorhiza ..... white rooted
lenta..... .....pliant
lentiginosa..... dusty dotted
lepida ..... neat, charming
lepidota .....scaly
leptocladis..slender branched
leptoneura ....slender nerved
leptophylla ....slender leaved
leptosepala ...narrow sepaled
leptostachya .. slender spiked
leucocarpa .....white fruited
leucocephala....white headed
leucocheila ..... white lipped
leuconeura .....white veined
leucophæa .....dusky white
leucophthalma ....white eyed
leucophylla.....white leaved
leucorhoda ....white and rose
leucoxyla.....white wooded
lignosa .....woody
ligularis.....strap shaped
ligustrina ..... privet-like
liliacea .....lily-like
limbata, having a colored or dilated surface.
linearis, having the two sides parallel.
lineata .....lined
lingualata .....tongue shaped
linifera .....thread bearing
linophylla .....flax leaved
litoralis..growing on the shore
litum .....daubed
lobularis.....small lobed
lonchitis..... spar like
longæva.....long lived
longicolla.....long necked
longicuspis.....long pointed
longipes.....long stalked
longipila.....long haired
lophantha.. .. crest flowered
lorata..strap or thong-shaped
lorifolia .....strap leaved
lucida..... shining
ludibunda.....sportive
lunata..... half-moon-like
lupulina..... hop headed
lurida.....dingy brown
lutea..... yellow
lutescens.....yellowish
luxata ..... discolor
lyrata..... lyre-shaped

M

macradenia.....large glanded
macrandra....large anthered
macrantha .....large flowered
macrocarpa.....large fruited
macrochila.....large lipped
macrophylla .....large leaved
macroplectron ..long spurred
macropoda.....large footed
macropus.....long stalked
macrorhiza.....large rooted
macrospeila.... broad stained
macrostachya....large spiked
macrura.....long tailed
maculata..... spotted
major (majus).....greatest
malacophylla.....soft leaved
maleolens....strong smelling
mamosa..... nippled
manicata, gloved; covered with a woolly coat, which may be stripped off whole.
margaritacea..... pearly
marginata.....bordered
marina .....sea
marmorata..... marbled
marmorea..... .....spotted
mascula.....male
media.....intermediate
megaceras.....great horned
megaphylla.....large leaved
megapotamica.....big river
megasperma.....large seeded
melaleuca....black and white
melanocaulon ...black leaved
melanococca.....black seeded
melanopus.....black stalked
melanoxylon ..black stemmed
meliosa .....honey scented
mellifera.....honey bearing
membranacea, thin and soft like a membrane.
micans .....glittering
micranthera..... small spined
micromeris....small flowered
microphylla.....small leaved
microptera.....small winged
microscypha.... small capped
minax ..... projecting
miniata.....vermilion
minor ..... least
mirabilis.....wonderful
miriantha.....many flowered
miriophylla.....many leaved
mitis..... small
mitriformis .....mitre-shaped
molinifera.....headed
mollis ..... soft
mollissima.....very soft
monanthema ....one-flowered
moniliformis, formed like a necklace.
monoceras ... .one-horned
monophylla.....one-leaved
monoptera ..... single winged
monostachya .....one-spiked
montana ...mountain loving
mucronata... ..sharp pointed
multi, in Latin derivatives, many; as, multiceps, many branched, etc.
multicaulis....many stemmed
multifida ... .many cleft
mundula ..... neat
munita ..... armed
muralis.....growing on walls
muricata, rough, with short and hard points.
musaica .....mosaic-like
muscipula .....fly catcher
muscosa.....mossy-like
mutabilis ..... changeable
myriostigma.....many dotted

N

nana ..... dwarf
napiformis ..... turnip-shaped
nasuta ..... large nosed
natans ..... floating
navicularis ..... boat-shaped
nebulosa ..... clouded
nemoralis ..... wood
nervosa ..... nerved
nidus ..... nest-shaped
niger ..... black
nigrescens ..... black
nitida ..... shining
nivea ..... snow white
nivealis ..... snowy
noctiflora ..... night flowering
nodosa ..... knotted
Novæ Angliæ, of New England
Noveboracensis ..... New York
nucifera ..... nut bearing
nuda ..... naked
nudicaulis ..... naked stemmed
nutans ..... nodding

O

ob is used in the composition of Latin technical terms to indicate that a thing is inverted; as, obovate, inversely ovate; obcordate, inversely cordate, etc.
obliqua, referring to shape, unequal sided.
oblonga ..... oblong leaved
obryzata ..... refined
obtusata ..... bluntish
occidentalis ..... western
ocellata ..... eye spotted
ochracea ..... ochre colored
ochrantha ..... yellowish flowered
ochreata, furnished with tubular stipules (ochrea).
ochroleuca ..... yellowish white
octa, eight, in such words as octagynia, having eight pistils; octamerous, the parts in eight, etc.
octhodes ..... tubercled
oculata ..... eyed
odora ..... sweet scented
odoratissima, very sweet scented.
officinalis (belonging to the shop); applied to plants, etc., used in medicine or the arts.
oleifera ..... oil bearing
olens ..... stinking
oleracea ..... esculent (eatable)
oligantha ..... few flowered
oligophylla ..... few leaved
olivaris ..... olive green
onusta ..... loaded
operculata. covered with a lid
oppositifolia ..... opposite leaved
orbiculata ..... circular in outline
oreophylla ..... mountain loving
orientalis ..... eastern
ornata ..... beautiful
ornithopoda ..... bird's foot
ornithoryncha ..... bird billed
ovata ..... egg-shaped
ovulata, ovulifera; bearing seeds or bodies destined to become plants.
oxycarpa ..... sharp fruited
oxygona ..... sharp angled
oxypetala ..... sharp petaled
oxyphylla ..... sharp leaved

P

pachyphylla ..... thick-leaved
padifolia ..... cherry leaved
paleacea ..... chaffy or scaly
pallida ..... pale
palmata, divided so as to resemble a hand.
paludosa ..... marsh loving
palustris ..... marsh
pandurata ..... fiddle-shaped
panduriformis ..... fiddle-shaped
papilionacea ..... butterfly-like
papillaris ..... conical
papillosa, bearing small, round projections.
papyracea ..... paper white
parasitica, living on the juices of other plants.
pardalina ..... leopard marked
parvifolia ..... small leaved
parvula ..... little
parvum ..... small
patens ..... spreading
patula ..... slightly spreading
pauciflora ..... few-flowered
pavonia ..... peacock-like
pectinata ..... comb leaved
pedatifida, cut into lobes, the lateral ones of which do not radiate from the petiole like the rest.
pedicellata ..... slightly stalked
pedunculata ..... stemmed
peliorhynchus ..... pigeon beaked
pellucida ..... bright, transparent
peltata ..... shield-like
pelviformis ..... open cup-shaped
pendula ..... drooping
pennata ..... feather-like
pennicillata ..... hair pencil-like
pennigera ..... winged
penninervis ..... feather nerved
penta, in Greek derivatives five; as pentadactylon, five-fingered.
pentagyna ..... five-carpelled
pentaphylla ..... five-leaved
percussa ..... sharp pointed
peregrina ..... foreign
perfoliata, when the stem appears to pass through the leaf.
perforata ..... pierced with holes
perigyna ..... borne on the calyx
pertusa ..... having slits or holes
petiolata ..... having foot stalks
petræa ..... growing on rocks
phæa ..... dusky
phœnicea ..... purple
phylla, a leaf, used in conjunction with numerals; as diphylla, two-leaved; tetraphylla, four-leaved.
picta ..... painted
pileata, having a cap or lid like the cap of a mushroom.
pilifera ..... bearing hairs
pilosa ..... hairy
pilosiuscula ..... slightly hairy
pinifolia ..... pine-leaved
pinnata, a compound leaf with leaflets arranged along the sides of a common petiole.
pinnatifid ..... pinnately cleft
piperita ..... pepper-like
pisiformis ..... pea-shaped
planicaulis ..... flat stemmed
platantha ..... broad flowered
platycarpa ..... broad fruited
platyclada ..... flat branched
platyglossa ..... broad tongued
platyphylla ..... broad leaved
platyptera ..... broad winged
pleiochroma ..... many colored
plicata ..... plaited
plumbea ..... lead-colored
plumosa ..... feathery
poculiformis ..... cup-shaped
podophylla ..... foot stalk leaved
poly, in Greek compounds numerous; as, polyantha, many flowered, etc.
polyacantha ..... many spined
polycarpa ..... many fruited
polycephala ..... many headed
polydactyla ..... many fingered
polyliria ..... lily-like
polylopha ..... many crested
polymorpha ..... many formed
polyphylla ..... many leaved
polyrhizon ..... many rooted
polystachya ..... many spiked
pomeridiana ..... afternoon
pomifera, apple, pear, etc., bearing.
porporophylla ..... purple leaved
porrigens ..... extending
potomophylla ..... swamp loving
præcox ..... early
præstans ..... excelling
prætexa ..... bordered
prasina ..... grass green
princeps ..... magnificent, chief
prionophylla ..... saw leaved
procera ..... tall
procumbens ..... trailing
prolifera ..... bulb bearing
propendens, hanging forward and downward.
propinqua ..... allied
pruinosa ..... frosty
psittacina ..... parrot-like
pterocephala ..... wing headed
pteroneura ..... wing nerved
pubens ..... downy
pubescens ..... downy
pubifolia ..... downy leaved
pudibunda ..... modest
pudica ..... chaste
pugioniformis ..... dagger-shaped
pulchella ..... pretty
pulcher ..... showy
pulla ..... russet
pulverulenta ..... powdery
pulvinaris ..... cushioned
pumila ..... dwarf
punctata ..... spotted
punctilobula ..... dotted lobed
pungens ..... stinging
punicea ..... reddish brown
pusilla ..... small
pustulata ..... blistered
putens ..... fœtid
pycnacantha ..... densely spined
pygmæa ..... dwarf
pyrophylla ..... fiery leaved

Q

quadrangulata....four-angled
quadri, in Latin compounds, four; as, quadrifida, four-cleft, etc.
quadrifida ..... four-cleft
quaternata, succeeding by fours.
quercifolia..... oak leaved
quinata, in fives; in compounds, quinque; as, quinquefolia, five-leaved, etc.

R

racemosa..... clustered
radiata, spreading from a common centre.
radicans ..... rooting
ramentacea..... scaly
ramiflora.....branch flowered
ramosa..... branched
reclinata...turning downward
recta..... erect
recurvata.....bent backward
reflexa.....bent backward
refracta.....bent back
reniforme.....kidney-shaped
repanda.....wavy leaved
repens..... creeping
replicata.....folded back
reptans.....creeping
reticulata.....netted
retrosa....directed backward
retusa....notched at the apex
revoluta.....rolled back
rhizanthera.....root flowered
rhizophora.....rooting
rhizophylla.....frond bearing
rhizophyta..... creeping
rhodantha.....rose flowered
rhodocineta.....red bordered
rhomboidea ..like a rhombus
rigens.....stiff
rigida ..... stiff
ringens ..... gaping
riparia .....river bank
rivalis.....brook loving
rosacea.....rosy
rostrata.....beaked
rotata .....wheel-shaped
rotundifolia.....round leaved
rubella .....reddish
rubescens ..... red
rubiginosa.....rusty
rubioides.....madder-like
rubra.....red
rubrovenosa.....red veined
rufa ..... brownish red
rufescens .....rusty colored
rufinervis.....red veined
rugiloba.....wrinkled, lobed
rugosa .....wrinkled
runcinata, saw-toothed, the teeth turned backwards.
rupestris... growing on rocks
rupicola .....rock loving
ruthenica .....Russian
rutilans .....reddish

S

saccata .....bagged
saccifera ..... bag bearing
sagittata ..arrow-head shaped
salicifolia .....willow leaved
saligna .....willow-like
saltatoria .. ..dancing
sambucifolia .....elder leaved
sancta ..... sacred
sanguinea.....bloody
sapida ..... savory
sarcodes .....flesh-like
sarmentosa, producing runners
sativa.....cultivated
saxatilis ....growing on rocks
scabra .....rough
scabrida .....rough
scandens .....climbing
scariosa.....tough and dry
sceptra .....princely
schidigera .....spine bearing
schizantha.....cut flowered
schizodon .....cut toothed
schizopetala .....cut petaled
scintillans ..... glistening
sclerocarpa .....hard fruited
sclerophylla .....hard leaved
scuta.....shielded
scutellata.....salver-like
secunda.....side flowering
segeta.....cornfield
segregata ..... kept separate
semi, in Latin compounds, means half, as semi-amplexicaulis, half stem clasping; semi-cordata, half heart-shape (divided lengthwise)
semperflorens..ever flowering
sempervirens ..... evergreen
senilis.....aged looking
sepia.....hedge
septemloba.....seven lobed
sepulta ..... enclosed
sericea . ..... silky
serotina, flowering or fruiting late
serratifolia ..... saw-toothed
sessilis ..... stalkless
setacea ..... bristly
setigera, covered with bristles
setulosa ..... bristly
sex, six, as sexangulare, six-angled, etc.
signata.....distinct
simplex .....simple
simplicicaulis, slightly branched.
sinuata .....wavy
smaragdina....emerald green
sobolifera, producing young plants from the root.
somnifera .....sleep causing
sororia .....sisterly
sparsa..... scattered
spathulata ....spatula-shaped
speciosa .....showy
spectabilis..... .....showy
speluncæ.....cavern
sphacelata, scorched or withered.
sphærocephala..round headed
spicata .....borne on a spike
spicigera .....ear bearing
spiloptera.....spotted winged
spinifex .....thorny
spinosa.....spiny
spiralis ..... spiral
spuria ..... counterfeit
squamosa.....scaly
squarrosa, when scales, small leaves or other bodies spread rigidly at right angles.
staurophylla .....cross leaved
stellata .....star-like
stenopetala ...narrow petaled
stenophylla....narrow leaved
stenoptera ....narrow winged
sterilis .....barren
stigmatica.....dotted
stigmosa.....branded
stipitata .....short stalked
stolonifera, producing creeping roots and shoots.
straminea .....straw colored
striata.....striped
stricta.....upright
strigosa, bearing little, rigid, unequal hairs.
strobilacea.....cone fruited
strumosa, swollen on one side only.
suaveolens ....sweet smelling
sub, as a prefix, means somewhat or slightly; as subcordate, slightly heart shaped, etc.
suberosa .....cork barked
subhirtella . .somewhat hairy
subulata ..... awl-shaped
succedanea, coming in the place of another.
succisa, as if cut off at the end.
suffruticosa, low and shrubby, or shrubby at the base.
sulcata .....grooved
surculosa .....suckered
suspensa.....hanging down
sylvatica.....from the woods

T

tæniosa.....banded leaved
tanacetifolia.....tansy leaved
tardiflora.....late flowering
taxifolia ..... yew leaved
tecta.....concealed
tectora.....roof loving
tenacissima .....very tough
tenax .....tough
tenella.....small
tenuifolia .....slender leaved
tergeminata.....thrice twin
terminalis, belonging or relating to the summit.
ternata.....growing in threes
tesselata, variegated by squares.
testacea, of a pale brown color
tetra, in Greek compounds, four; as, tetrastichous, with four vertical ranks, etc.
tetracantha.....four-spiked
tetracopis . .....four-bladed
tetragona.....four-angled
tetrandra.....four-anthered
tetraspis .....four-horned
thalamiflora, with the stamens, etc., inserted in the receptacle.
theifera.....tea bearing
thurifera .....incense bearing
thyrsiflora ...panicle flowered
tibicinis.....cowhorn-like
tigrina..... ..tiger spotted
tinctoria.....colored (dyer's)
tomentosa, densely and closely hairy.
torta ..... twisted

torulosa.....slightly twisted
toxica.....very poisonous
tri, in compound words, three; as, triangulata, three-angled, etc.
triacanthos..... three-spined
trichodes.....hair-like
trichosantha...hairy flowered
trichotoma, branches divided in threes.
tricolor.....three-colored
tricuspidata .....three-spined
tridactyla..... three-fingered
trifasciata..... three-banded
trifida.....divided in three
triflora..... three-flowered
triglochin ..... three-hooked
triphylla ..... three-leaved
tripteron. .....three-winged
triquetrum.....three-sided
tristis .....sad
truncata....blunt, as if cut off
tuberculata..... warted
tuberosa....producing tubers
tubifera .....tube bearing
tubulosa..... tubular
tunicata.....coated
turbinata ..... top-shaped
turgida....swollen, puffed up

U

uliginosa.....swamp loving
umbellata. flowering in umbels
umbraculifera, umbrella bearing.
umbilicata, depressed in the centre, like the navel.
umbonata, having a top in the centre like that of the ancient shield.
umbrosa ..... shade loving
uncinata .....hooked
undulata.....waved
unguiculata ....bearing claws
uni, in Latin compounds one; as, unifoliata, one-leaved, etc.
uniflora ..... one-flowered
unilateralis .....one-sided
unita ....joined
urceolata.....pitcher-shaped
urophylla.....caudate leaved
urostachya.....tall spiked
ustulosa.....scorched
utilis .. ..useful
utriculata..... bladdery

V

vaginata..... sheathed
valida..... strong
varia.....variable
varicosa, swollen here and there.
variolosa..... variegated
velutina, velvety, covered with very fine and close, soft, velvety hairs.
venenata.....poisonous
venosa..... veined
ventricosa.....inflated
venusta..... charming
vera ..... true
verecunda..... . modest
vernalis..... spring
vernicosa.....wax bearing
verrucosa..... warty
versicaria..... bladdery
versicolor....various colored
verticillata.....whorl leaved
vesca..... edible
vesiculata, as if composed of small bladders.
vespertilionis..... bat-like
vespertina..evening flowering
vestita..... clothed
vexillaria..having a standard
villosa, long, shaggy, with long, loose hair.
viminacea, bearing long, flexible twigs.
viminalis.....twiggy
virens.....vigorous
virgata.....twiggy
virginalis.....pure
viridis.....green
viscosa.....clammy
viticulosa, producing small suckers or stolons.
vitifolia..... .....vine leaved
vittata.....striped
vivipara, bearing young plants in the place of flowers and seeds.
volubilis..... twining
voluta.....rolled leaved
vulgaris..... common

X

xanthina..... yellow
xanthocoma....yellow haired
xantholeuca..yellowish white
xylocarpa.....wood fruited

Z

Zelanica.....from Ceylon

PRACTICAL HINTS TO AMATEURS

AS TO

SEASONABLE WORK

IN THE

GREEN-HOUSE, FLOWER, FRUIT AND VEGETABLE GARDEN.

THROUGHOUT this work we have been particular in stating the season at which the different gardening operations should be performed, still it may be of service to many to suggest, briefly, in calendar form, the work that may be performed during each month of the year. The dates given are mostly for the Eastern and Middle States. The reader must vary operations, earlier if in the South, later if in the North.

JANUARY.

GREEN-HOUSE AND WINDOW PLANTS.—As this is usually the coldest month of the year, and also that in which we have the least sunshine, particular attention must be paid to airing, watering, syringing, etc. But little ventilating need be done; but when it does become necessary to do it, caution must be used. Be careful to raise the ventilating sash only so high that the heated air from the green-house will be able to drive back the outer air to such an extent as not to chill the plants. For example, occasionally, after a very cold night, where severe firing has been necessary to keep up the required temperature, say to sixty degrees, it happens that the sun comes out bright during the following day, so that by noon, or before, the temperature may be at a hundred degrees inside the green-house, though outside it may be nearly at zero. In such case the raising of the sashes an inch or two will rapidly lower the temperature of the green-house, so that an hour or so of such ventilating would be all that is required. As little fresh air can be given, insects are to be watched this month closely. By the use of fire-heat a dry atmosphere will be created, in which the Red Spider luxuriates. Nothing answers so well for its destruction as copiously syringing the plants at night, and splashing the paths with water, as it cannot exist to an injurious extent in a moist atmosphere. The Aphis, or "green fly," must also be destroyed, or it will soon cause great injury to the plants. (See Insects.) The leaves of Window Plants should be sponged often to keep the dust from filling up the pores of the leaves. Tepid water should be used, with a little soap or Fir-tree oil dissolved in it, and any plant, small enough to handle, that shows signs of red spider or other insect enemy, if dipped in water heated to 140 degrees, will be instantly cleansed without having received the least injury from the bath. Plants should be occasionally turned round to prevent their growing one-sided. Hyacinths and other bulbs which were placed in boxes or pots last autumn may now be brought to the light, the best rooted and most forward will give the earliest flowers. They should be well supplied with water, and these, as well as all soft wooded, free-growing plants, will be benefited by an occasional watering with liquid manure. The plants to bloom this month are Primulas, Cinerarias, Cyclamens, Bouvardias, Roman Hyacinths, Early Tulips, Callas, Azaleas, Camellias, Carnations and many others. Such plants as Agaves, Echeverias and other succulents should be kept dry and allowed all the sun possible.

FLOWER GARDEN.—Though at this season of the year there is but little chance to do much in the flower garden, yet it is an excellent time to make any necessary improvements or alterations before the hurry of spring sets in. Such work as grading or draining may be pushed forward. Now is, also, a good time to remove all stones, roots, etc., which, when practicable, may be utilized in forming a rock-garden, or, if piled up picturesquely in a heap and covered in the spring with vines, creepers, etc., form often quite an attractive adjunct to a garden or lawn If not already done, all hardy Vines, Shrubs, Evergreens, etc., will be much benefited by a liberal top-dressing of well-rotted manure.

FRUIT GARDEN.—Pruning or mulching can be done if the weather is such that the workman can stand out. No plant is injured by being pruned in cold weather, though the pruner may be.

VEGETABLE GARDEN.—In the Northern States little can be done in this department this month, except to prepare manure, bean-poles and pea-sticks, and get sashes, tools, etc., in working order; but in sections of the country where there is but little or no frost, the hardier kinds of seeds and plants may be sown and planted, such as Asparagus, Cabbage, Cauliflower, Carrot, Leek, Lettuce, Onion, Parsnip, Peas, Spinach, Turnip, etc. In any section where these seeds can be sown in the open ground, it is an indication that hot-beds may be begun for the sowing of such tender vegetables as Tomatoes, Egg and Pepper Plants, etc., though, unless in the extreme Southern States, hot-beds had better not be started before the first of February.

FEBRUARY.

Green-house and Window Plants.—As the days begin to lengthen, indoor plants seem to take a fresh start and begin to grow and flower vigorously. Many of the sorts will require repotting; Gesneras, Gloxinias, Achimenes, and kindred tubers, may now be looked over, and a portion of them potted and placed in a warm corner to start for early flowering. Old Fuchsias, Geraniums, Abutilons are now sending forth strong, young shoots, which may be propagated as soon as they are large enough to handle. Annuals for early summer blooming, such as Petunias, Verbenas, Cobæa scandens, Cannas, Castor Oil Beans, Centaureas, etc., should now be sown in shallow pans or boxes and transplanted as soon as fit to handle. Tuberoses for early flowering, and Dahlia roots, if put in a gentle bottom heat, will now start, the former to be potted off as soon as the young roots appear, and the young shoots of the latter propagated in the usual way. The general directions as to ventilation, cleanliness, etc., for January apply to this month; insects being rigidly kept down, and sufficiency of water with an occasional supply of liquid manure being given to such plants as begin to grow freely.

Flower Garden.—But little can be done here, only to follow the instructions given last month. Prune deciduous trees and shrubs, and give the lawn and grass plots a good top-dressing of well-rotted manure, or what is better, of bone-meal; there are no weed seeds in the latter.

Fruit Garden.—In the Northern States, little can be done except to prune any trees or vines that have not yet been seen to, and to clear the limbs of any moss, fungus or insects that may be harboring under the old bark. In many Southern States this will be the best month for planting fruit trees and plants of all kinds, particularly Strawberries, Raspberries, Blackberries, Pear and Apple, while Grape-vines will do well a month later.

Vegetable Garden.—Leaves from the woods, horse-manure, and any litter that may be collected, should be turned over several times and thoroughly mixed together, so as to get it sweetened preparatory to forming hot-beds (see Heating by hot-beds) on which Early Cabbages, Lettuce and Radishes may be sown as soon as the frame or hot-bed is in condition. It is now the proper season to force Asparagus, Rhubarb, Sea-kale, etc., as they will (being so out of season) give great satisfaction to many epicures. As Parsley seed germinates but slowly some should be sown for early planting. Mint may also be had by putting a few plants in the hot-bed. Manure that is to be used for the crops should be turned and broken up as fine as possible; for the more completely manure of any kind can be mixed with the soil, the better will be the crop, and, of course, if it is dug or plowed in in large, unbroken lumps, it cannot be properly commingled.

MARCH.

Green-house and Window Plants.—As the spring advances, and more light and sunshine prevail, plants soon begin to show the stimulus by vigorous and rapid growth. It is necessary, therefore, to examine all plants that are growing vigorously, and, when deemed necessary, shift into larger-sized pots. (See Potting.) The propagation of plants such as Alternantheras, Coleus, Achyranthes, etc., to supply the flower garden may also be continued with vigor, and those propagated last month should be growing luxuriantly, and be shifted into larger pots as required. They must not be allowed to suffer for water or moisture, and will always show the benefit of being well syringed or watered overhead. On fine days air must be admitted freely to all plants, carefully avoiding cold draughts. Insects of all sorts must, of course, be kept down, and copious waterings of manure-water will be advantageous to all plants likely to get pot-bound. House plants should be kept as near the glass as convenient, and should be turned round frequently to prevent them from becoming one-sided. All climbers, such as Bignonias, Cissus, Passion-flowers, etc., planted in tubs or in the borders of the green-house or conservatory, should have a liberal top-dressing of rich compost; all the old top soil possible removed before it is applied. Flower seeds sown last month will be large enough to prick into shallow boxes of good soil as opportunity may offer, and may be kept there until ready to plant in the open border. Cannas may now be divided and potted, also Colocasias and other ornamental Arads; Lemon Verbenas, Hibiscus, Hydrangeas, and other plants that have been kept dormant all winter, top-dressed or repotted, and started to grow for summer use.

Flower Garden.—All planting and pruning of vines, shrubs or trees must be finished as soon as possible this month, and vines and climbers that require it tied up. Any removal of shrubs to prevent overcrowding, or trimming in overgrown specimens, must be attended to without delay; single specimens are always admirable objects. The herbaceous border may be re-arranged, the rock-garden overhauled, and walks and roads attended to, with new gravel, etc., whenever the weather will admit, and thoroughly rolled. The bulb beds should be gradually uncovered, lawns raked off and top-dressed (if not done before) with rich, well-rotted manure, bone-meal, or similar fertilizer; new lawns may also be sown if soil is dry enough, and flower-beds dug up, to have them in good order for the spring planting, and all improvements, such as grading, draining, sodding, etc., finished up as soon as possible.

Fruit Garden.—Planting may now be done safely in light, dry soils in many sections, still it is not advisable to plant before the ground is dry. It is bad to do so even in light soils, but it is utter destruction in stiff and clayey ones. Great care should also be exercised that the roots are not frozen when exposed, for although a tree or plant will receive no injury *when its roots are in the soil*, should a frost come after planting, yet the same amount of freezing would greatly injure the plant if the roots were uncovered and exposed. Thousands of trees and plants fail every year from this cause. They are exposed for sale in our markets with no

protection to the roots; even the experienced purchaser rarely has sufficient knowledge to be certain whether the roots of a tree have been injured by being frozen or dried up by the cold winds of March.

VEGETABLE GARDEN.—Early Peas, Onions, Parsnips and the various vegetable seeds recommended for the Southern States in January cannot be planted too soon after the ground is in working order. Hot-beds must now be started, and Tomatoes, Egg Plants, Sweet Potatoes, etc., forwarded for early planting. In the more Southern States the tender sorts of vegetables, such as Melons, Okra, Egg Plant, Squash, Sweet Potatoes, Tomatoes, etc., may be planted as soon as the weather is settled.

APRIL.

GREEN-HOUSE AND WINDOW PLANTS.—Plants of every description will now require increased water and ventilation, and on fine days a slight shading to prevent the sun from burning the foliage. (See "Shading.") Due attention must also be paid to shifting into larger pots, when necessary, and also to increase the space, when practicable, by putting the hardier sorts out in cold-frames. It is better to throw away a few of the older and less desirable plants now, than to risk their becoming weak and spindling by overcrowding. Cuttings may still be made of Verbenas, Coleus, Petunias, Ageratums, Achyranthus and all other plants intended for summer decoration; the more advanced plants should be topped back to make them sturdy and bushy. Tender annuals may also be sown and pricked out in boxes or pots and placed in cold-frames for later use. On the first appearance of insects, measures must at once be taken to exterminate them, especially on Calceolarias and Cinerarias, which will now be coming into flower, and are the most showy and useful plants at this season. (See "Insects.") See that nothing suffers for want of water and keep the atmosphere moist by syringing freely.

FLOWER GARDEN.—This is a busy month in the flower garden. Bulbs, and all tender plants that have been covered for protection during winter, may now be uncovered and the other beds forked over and put in order to receive the spring-blooming plants such as Pansies, Daisies, Forget-me-nots, Polyanthus, etc., which may be planted out from the cold-frames as soon as the weather appears settled, thus making room to harden off the more forward of the bedding plants. All Roses should now be pruned and tied up, and syringed occasionally with tobacco, soap or some other insecticide, to prevent the attack of the rose-slug next month; this insect is easily destroyed while young. All vines and creepers on walls or screens should be pruned and tied up; herbaceous plants, such as Dielytras, Phloxes, Helianthus, Delphiniums, etc., may be divided and replanted, and a planting of Gladioluses for early flowering made. This is also an excellent season to sow Grass seed to improve the lawn, or to sow for new lawns, following it by a slight top-dressing of bone meal or lawn fertilizer and a good rolling to level it thoroughly for the mower.

FRUIT GARDEN.—All new plantations of Grape vines, Strawberries, Raspberries, Blackberries, etc., should be made without delay, and those that have been laid down during winter uncovered and tied up to stakes or trellises. Strawberries that have been covered up by leaves or straw should be relieved around the plant, leaving the covering to act as a mulch and keep the fruit clean.

VEGETABLE GARDEN.—Whenever the soil is in good condition no time should be lost in sowing the hardier sorts of vegetable seeds, such as Cabbages, Beets, Parsnip, Lettuce, Onions, Parsley, Peas, Radishes, Spinach, etc.; this should be done in all cases by the middle of the month, wherever practicable, for if these varieties of vegetables are delayed until the hot weather in May, they will not be so early, nor will they produce such good crops. Asparagus and Rhubarb should also be uncovered, the beds forked over lightly and fresh plantations made when necessary. All Potatoes, especially those for early use, must also be planted as soon as possible, and small sowings made of Thyme, Marjoram, Sage, Fennel, Dill and other herbs, without which no garden is complete. Cabbage and Cauliflower plants, Onion sets, Shallots, etc., should also be planted as soon as the weather is favorable. Tomatoes, Egg-plants, Peppers and other tender plants may still be sown in the hot-bed, Sweet Potatoes put in to produce sprouts to plant out next month, and a few Cucumbers in hills to remain there and come in for early use.

MAY.

GREEN-HOUSE AND WINDOW PLANTS.—Many of the plants so carefully wintered over will now be in full bloom, and except on very cold nights firing in the green-house may be dispensed with; still, during the first of the month care must be exercised in ventilating, on account of the cold winds. It will now be necessary to partially shade the glass, which may be done either by "burlaps" on rollers overhead, or more cheaply and simply by syringing the glass, outside, with a thin mixture of white lead and naphtha, spattering it on more thickly every week or two as the sun grows stronger. (See "Shading.") Azaleas will now be at their best and will fully repay the care bestowed on them. As soon as they are done blooming they should be pruned into shape, and after being kept close and moist for a short time till they break, repotted for next season, and about the end of the month placed with Camellias and kindred plants in a slightly shady place, out-of-doors, where they may be freely syringed and attended to during summer. The various plants that have done duty during winter should now be looked over; those that do best in pots repotted, while many will recuperate better if planted in the open border for the summer. All climbers, such as Cissus, Passifloras, Stephanotis, Allamandas, should be tied up and kept in order, and syringed freely every day to keep them clean and healthy, while the many varieties of Achimenes, Gloxinias, Bego-

nias, etc., with Caladiums, Crotons, Dracænas, Marantas, etc., will keep the green-house gay till warm weather sets in. Poinsettias, Catalonian Jessamines and other plants intended for winter blooming should now be repotted, and Calla Lilies that have done flowering placed in a shady place, where the pots can be turned on their sides and left to dry off until time to repot them in fall.

FLOWER GARDEN.—The vacant beds in the flower garden should now be in order to receive the plants intended for them, which, with the exception of the more tender sorts, may be planted as soon as the weather is settled. Forget-me-nots, Pansies, Daisies, Polyanthus and other spring flowering plants are now at their best, and if they have been judiciously planted will be quite a feature in the garden. The rock-garden is also very interesting at this season, as it has been for some time, the various early plants, such as Hepaticas, Anemones, Snowdrops and other early bulbous plants, being most interesting. New lawns or grass plots if not sown before, should be sown at once; none but the best selected seed should be used for this purpose. Permanent lawns should be mown and rolled as occasion requires, edges trimmed nicely and all flower beds kept free of weeds. Annuals for early flowering that have been sown in the frame or green-house may now be planted out, and such hardy sorts as Sweet Alyssum, Mignonette, Candytuft and Phlox Drummondii sown in the open border. Cuttings of Chrysanthemums if started now will make fine plants for fall flowering. As soon as Hyacinths, Tulips, etc., are done flowering, if their room is wanted, they should be carefully taken up and heeled in, in some out-of-the-way corner where they may ripen off their bulbs.

FRUIT GARDEN.—Many of the smaller fruits may yet be planted, though with less prospect of success than if done earlier. As the various insect pests make their appearance, they must be checked at once; a free application of tobacco dust mixed with Persian powder, dusted on liberally, will be found very efficacious. It is still better, however, used as a preventive; for if the insects once get a foothold they are hard to dislodge. The hoe and cultivator must be kept constantly at work, not only to keep down weeds, but to loosen and aërate the soil.

VEGETABLE GARDEN.—As the ground gets warm, seeds of all the more tender vegetables, as Cucumbers, Melons, Squash, Corn, Lima Beans, Okra, etc., may be sown, and Cabbage, Cauliflower, Lettuce, etc., from the earlier sowings transplanted. Toward the end of the month, if the weather looks settled, Tomatoes, Egg-plants, Peppers, Sweet Potatoes, etc., should be planted out, and succession crops of Peas, Beans, Corn, Lettuce and other vegetables planted every week or two. Field crops, such as Mangels, Carrots, Parsnips, etc., should also be sown and all necessary work promptly attended to

JUNE.

GREEN-HOUSE AND WINDOW PLANTS.—The bulk of the bedding and other plants being now planted out or placed out-of-doors, the green-house may be utilized to grow such tropical plants as may be desired during the summer months. If kept moist and well shaded, fine specimens of Dracænas, Palms, fancy Caladiums, Ferns, Crotons, etc., will render it very attractive. A few of the smaller growing Nymphæas or other water plants grown in tanks or under other appropriate conditions, will give it additional attraction during the season.

All plants that require it should be repotted, and, with few exceptions, should be pinched back to make them branching and stocky. Others that require it may be trained and made to grow in any desired form. Syringing, both outside and indoors, should be regularly attended to, to keep down insects; and the plants are much benefited by the pathways being sprinkled occasionally with water.

FLOWER GARDEN.—All the spring flowering plants have now been removed, and their places filled with those plants already selected to give the most desirable results during the season. Cannas, single and double Dahlias, Asters, Marigolds, Zinnias, etc., may now be planted; they will bloom until frost, and are exceedingly useful for cutting from. Staking and tying up strong growing plants should always be attended to—neglect in this matter often ruins the appearance of the garden for the season. Verbenas, Petunias and plants of similar habit should be pegged down so that the beds may be thoroughly covered. Lawns should be mown frequently, the grass edgings trimmed, and walks frequently rolled, if necessary, and kept in good order. Grass Seed for new lawns may yet be sown.

FRUIT GARDEN.—We cannot too strongly enforce the necessity of thinning out the fruit of Apples, Pears, Peaches, etc., which have set their fruit thickly. By so doing much finer fruit is produced, the flavor is much superior, and the weight at least equal. This is equally true of Grape-vines or any other fruits that may have set too thickly. All small fruits are much benefited by having a mulching of some sort placed around them, Strawberries in particular; if they have been overlooked, the cut grass from the lawn is an excellent material to keep the fruit from getting sanded and spoiled by heavy rains. Judicious summer pruning, or pinching out the centre of the young growth, at this season, will not only keep the young trees in better shape, but make them more fruitful.

VEGETABLE GARDEN.—During this, the busiest month, all growing crops need constant attention. Thin out all plants that require it, and keep all crops clean by weeding and hoeing. At this season weeds are very apt to get a strong foothold unless they are carefully watched. Keep the hoe and rake going; a man will hoe and rake over six times the surface of soil when the weeds are quite small that he would do if the weeds were six inches higher. A succession of Corn, Beans, Cucumbers, Beets, Lettuce, Okra, Martynias for pickles, should now be planted, and Lima Beans, both pole and dwarf, as soon as the soil is warm enough. Sweet Potatoes will yet do well if planted in a suitable location. If Tomatoes are desired to be handsome fruited and fine flavored, they should be trained up to stakes or trellises. Attend to Cabbage Worms and look out for Potato Bugs. (See "Insecticides.")

JULY.

GREEN-HOUSE AND WINDOW PLANTS.—At this season a copious supply of water must be given, both at the root and overhead. In the green-house especially, sprinkle the paths and benches in the evening to keep up a moist atmosphere during the night. Use every effort to keep everything clear of such insects as Green Fly and Red Spider. If the house is kept shaded, almost all so-called stove plants can be grown successfully in the green-house during the summer months. The plants from the green-house that may have been plunged out-doors must be watched when they require repotting; and where the roots have run through the pots, they should also be occasionally turned round, to break them off; for if this is not done now, it would seriously injure the plant when taken up in the fall, if the roots have run through the pot and deep into the soil. Many of them will require to be pinched back occasionally to keep them bushy, and Chrysanthemums for winter blooming topped in and turned around. Carnations, Bouvardias and other plants for winter blooming should be pinched back. Azaleas, Oranges, Camellias and plants of a like character will be much improved by being syringed every clear evening, care being taken at the same time that they are not over-watered.

FLOWER GARDEN.—The usual routine of mowing, weeding, etc., must be attended to, all irregular growth trimmed back, the various early flowering shrubs pruned (see "Pruning"), and the flower beds trimmed and kept neat. Nothing gives such an air of neatness and beauty to a well kept garden as a well kept lawn, and neatly kept, well rolled walks. The rock-garden must also be kept in good order; all weeds removed, and any plants that are growing too large or strong, shortened back. Dahlias, Roses, Gladioluses, as well as many herbaceous perennial and annual plants, will now require staking. Be careful to proportion the size of the stake to that of the plant, and do not tie it too tightly. Stakes painted green look best, and the square are nearly as good as the round ones, and much cheaper. Give the Cosmos, lovely for its feathery foliage and single, Dahlia-like flowers, a long stake, and, once in a while, run a spade down near its roots to check its rampant growth and throw it into flower; it will well repay the trouble. All vines and creepers should be trained up, and all superfluous growth pruned away. If the weather is moist it will yet do to sow Grass Seed for new lawns.

FRUIT GARDEN.—As recommended last month, thin out all Apples, Peaches, Pears, etc., which have set their fruit thickly, as by so doing an equal weight is secured, much finer fruit and superior flavor. Summer pruning is still useful; a little practice will soon show its advantage. If there are any signs of mildew on the Grape-vine leaves, dust them over with dry sulphur, choosing a still, warm day. The fruit will now be gathered from the Strawberries; and if new beds are to be formed, the system recommended of layering the plants in small pots is the best. (See "Strawberries.")

VEGETABLE GARDEN.—Succession crops of Beans, Corn, Cucumbers, Lettuce, etc., may still be sown, and in some sections of the country Ruta-baga Turnips for the main winter crop. Cabbage, Celery and Cauliflower should also be planted, more especially Celery for a main crop. Tomatoes should be kept tied up to stakes or trellises, and the fruit well exposed to the light. Sweet Potatoes should also be held up, and the vines moved occasionally to prevent their rooting at the joints. Cucumbers for pickles should now be sown, and Endive for fall use. (See directions given under these separate heads.)

AUGUST.

GREEN-HOUSE AND WINDOW PLANTS.—Nearly all that is necessary during this month is to follow the instructions given for July. Hanging Baskets, Vases, etc., require constant attention, and all climbers and other plants should be syringed freely, and kept clear of insect pests. Plants intended for winter flowering should be forwarded by being repotted, and kept bushy by being pinched back occasionally. Primulas, Calceolarias, Cinerarias, etc., should be sown, and preparations made for propagating such plants as may be required for winter or spring flowering. Chrysanthemums must not be neglected, as the pots are now full of roots and will require water twice or three times a day. Cuttings struck at this season make excellent dwarf plants for the window or green-house, generally flowering a week or two later than the old plants. All such work as painting, glazing, seeing to boilers, etc., is now in order, and should be attended to, before the press of autumn work comes along.

FLOWER GARDEN.—Here, as in the green-house, the routine of work is the same as last month. No pains should be spared to keep the garden beautiful; all dead leaves and flowers should be removed and the edgings and walks kept neat and clean. The grass should be rolled frequently, and mown as often as necessary; in very dry weather it may be advisable to water it frequently to keep it from becoming parched and brown; one of the improved lawn sprinklers is excellent for this purpose. Tea and other autumn flowering Roses will be benefited by an occasional supply of manure water; all tall growing, herbaceous and other plants should be staked up, the soil loosened occasionally, and all weeds kept down. Sow Grass Seed for new lawns if not too dry.

FRUIT GARDEN.—During the early part of the month summer pruning may still be practiced with advantage. Spring-planted Strawberries, and also those that have fruited, will now be making "runners" or young plants freely. All runners should be kept cut off close to the old plant when not wanted for new plantations, so that the full force of the roots is expended in maturing the "crowns" or fruit buds for the next season's crop. New plantations may also be made—the sooner they are planted, the heavier the next season's crop will be. (See "Strawberries.") Cut away the old stems of Raspberries

and Blackberries that have borne their fruit, and thin out the young shoots to three or four canes to each hill or plant. If tied to stakes and topped when four or five feet high, they will make stronger canes for fruiting next year.

VEGETABLE GARDEN. — All planted crops should be hoed deeply and kept free from weeds. Such herbs as are now in flower may be dried in a shady place for winter use. Ruta-baga Turnips sown last month will require thinning, and the various soft varieties, such as Red Top Strap Leaf, White Globe, White Egg, etc., and Radishes for winter use, may be sown up to the end of the month. Onions will in most sections now be ready for harvesting. This condition will be known by the tops becoming yellow and falling down. They are best dried by being placed in some dry shed in thin layers. (See "Onions.")

SEPTEMBER.

GREEN-HOUSE AND WINDOW PLANTS.—Toward the end of the month, in many sections of the country, the various green-house plants will require to be housed, care being taken to keep them as cool as possible during the day. Plants that have been plunged out during summer will require to be examined as to drainage, and receive a top-dressing of good, rich soil; many of them may require shifting into larger pots, though this should have been attended to last month. Cuttings of plants required for next season's use should now be made, as fall rooted cuttings generally bloom more freely than winter struck plants, and are preferable to old plants. This is true of what is known as bedding plants, such as Geraniums, Fuchsias, Verbenas, Heliotropes, etc.; but with Roses and other plants of a woody nature, larger plants are usually the best. Roman Hyacinths, Early Tulips and other Dutch bulbs should be planted as soon as received, especially for an early crop, and seeds of Pansies, Daisies, Mignonette, Sweet Alyssum, Candytuft, etc., should now be sown, and Chrysanthemums should not be pinched back later than the first of the month.

FLOWER GARDEN.—The general routine of work recommended for last month will suffice for this. Lawns, grass edgings and walks kept neat and tidy, improve the appearance of the garden tenfold. Cuttings of all bedding plants may now be taken off without injuring the effect of the beds, and generally make stronger and better plants for the following season if struck early. Violets that are wanted for winter will now be growing freely, and the runners should be trimmed off as recommended for Strawberries last month. French and African Marigolds, Cosmos, Single and Double Dahlias and other autumn flowering plants are now at their best, and should be staked and tied up as they require it. This is the best fall month for sowing lawn Grass for new lawns, though by careful preparation of soil and rolling, new lawns can be made in any month from end of March to beginning of November.

FRUIT GARDEN.—All transplanting should be done as early as practicable; it is not necessary to wait till all the leaves are off before doing so. If the roots have been badly mutilated, reduce the head proportionately, cutting away whatever may not mature, and see that the earth is well packed about the roots. If not already done, attend to Blackberries, Raspberries and other small fruits as recommended last month. New plantations of Strawberry plants may still be made from the runners that have been layered in pots. The sooner in the month they are planted, the stronger they will be for next season's crop. These plants will soon make runners, which must be trimmed off to throw the strength into the crowns for next season's fruiting.

VEGETABLE GARDEN.—The main crop of Spinach and Sprouts for spring use may now be sown, and early Celery banked up fully, while even the latest planted should be "handled" so as to have it in close-together heads when placed in winter quarters. (See "Celery.") Early sorts of Turnips may yet be sown, though there is little chance of their being a full crop. Onions that were not harvested last month should now be attended to or they will not amount to much. Seeds of Cabbage, Cauliflower and Lettuce to raise plants to be placed in cold-frames should be sown in this latitude from the 10th to the 20th of this month, and when large enough to handle, pricked off into cold-frames two to three inches apart for the winter, although this plan is little used now, the plan being to sow for early plants in January and February. (See "Cabbage" or "Cauliflower.") Late sown Beets, Carrots, etc., will now be coming in, and are the more valuable on account of their sweetness and tenderness.

OCTOBER.

GREEN-HOUSE AND WINDOW PLANTS.—As the season advances it becomes necessary, especially North, to house all tender plants, for which, of course, preparations have already been made. Unless the nights become cold enough to chill the plants inside of the house, they are better without fire heat, though the green-house at this season should never be allowed to fall below fifty degrees at night. When there is indication that the night is likely to be cold, let down the sashes that have been raised for ventilation early in the afternoon, and thus shut up the heated air until next day. If the thermometer falls to forty or forty-five degrees outside, a slight fire should be started in the green-house, as Roses, particularly at this season, are easily hurt by a sudden chill.

Carnations, Camellias, Azaleas and Roses will do just as well, or even better if kept in a cold-frame until the middle of November, thus giving them a rest before forcing begins. See that all Camellias, Azaleas and other hard-wooded plants are thoroughly clear of insects before being housed; it will make the winter's work all the easier.

FLOWER GARDEN.—Unless in a very favorable season, by the middle of the month frost has cleared off all Dahlias, Marigolds, Cosmos and other plants that make the autumn months so gay. All the fall bulbs, such as Hyacinths, Tu-

lips, Narcissus, Crocus, etc., should now be planted, hardy bulbs transplanted where necessary, and preparations made for winter.

Dahlias, Tuberoses, Gladiolus, Cannas, Caladiums, Tigridias, and all tender bulbs or tubers that are planted in the spring, should be taken up by the end of the month, dried and stowed away in some dry place free from frost during winter.

Fruit Garden.—All transplanting should be attended to early this month if not already done, to give the trees a chance to get well established before winter. If planting is deferred to the last of the month, the ground around the roots should be mulched to the thickness of three or four inches with leaves, straw or rough manure, as a protection to the roots against frost. Strawberries that have been layered in pots may yet be planted, and all runners carefully removed from earlier plantings.

Vegetable Garden.—Toward the last of the month Beets, Parsnips, Carrots, Sweet Potatoes, and all other roots not designed to be left in the ground during winter, should be dug and housed or pitted. Celery will now be in full growth, and will require close attention to earthing up, and during the last part of the month the first lot may be stored away in trenches for winter. (See "Celery." Lettuce for winter use, if planted in cold-frames or in the green-house, will be ready for use by Christmas. Cabbage and Cauliflower plants, from seed sown about the middle of last month, should now be pricked out in cold frames, and Rhubarb and Asparagus, if wanted for winter use, should be taken up and stored free from frost, to be forced in the green-house or pit, as desired, during winter. (See "Forcing Vegetables.")

NOVEMBER.

Green-house and Window Plants.—There is nothing so prejudicial to the well-being of green-house plants as too much fire-heat early in the season. Though frost may now be expected and must be guarded against when necessary, it is better to follow the advice given last month, and close up the ventilators early, thus shutting in the natural heat, which, however, should not be allowed to fall under fifty degrees, unless for Camellias, Azaleas, Carnations, etc., which will succeed better if kept at a night temperature of forty degrees. The first batches of Roman Hyacinths, Early Tulips, etc., may now be started along gently. Insects, especially on the young growths of Roses and many "soft-wooded plants," will soon get troublesome unless kept rigidly in check. Where fire-heat is necessary be careful to keep up the proper supply of moisture by syringing, sprinkling the paths, etc. In the window, Chysanthemums will be at their best during this month, and Primulas and Cyclamens beginning to show flower. All plants must be kept clear of insects, and where the plants are not too large one of the best modes of doing so is to invert the pot, dipping the head of the plant in water heated to 140 degrees for a few seconds. This not only kills green fly, red spider, and other insects, but removes all dust, etc., from the leaves.

Flower Garden.—Where Chrysanthemums have not been hurt by frost the flower garden should still be showy, and even where protection has to be given them they may often be made to give an excellent show during the early part of the month; otherwise there is little left to do but to clear off dead stalks, straw up tender Roses, vines, etc., and wherever there is an opportunity to dig up the borders, as it will greatly facilitate spring work. All evergreens are much benefited at this season by a top-dressing of fresh loam or well-rotted manure. In the flower garden variety is always pleasing, and now is a good time to study how to have it arranged differently next season at little cost. It is often as easy and as pleasing to have change at small expense as when a large sum is involved. All beds where Hyacinths or other fall bulbs have been planted, had better be covered with rough litter or leaves to the depth of two or three inches. It is always risky to spread manure on lawns, unless it is thoroughly rotted. If such can be procured a good top-dressing applied now will show its good effect the following season.

Fruit Garden.—Grape vines and fruit trees may be pruned any time this month, and if wood of the vine is wanted for cuttings, or cions of fruit trees for grafts, they should be tied in small neat bunches, and buried in the ground until spring. The mulching recommended for Strawberries may also be put on during the last of the month, especially in cold localities. It is, however, generally not advisable to apply it till just before winter sets in, in December.

Vegetable Garden.—All roots required for winter use that have not already been dug and housed, should be attended to by the middle of the month, or in this latitude they may get frozen in until spring if left longer. Celery that is to be stored for winter use should be put away before the end of the month in all places north of Richmond, Va. South of that it may be left, in most places, in the rows where grown, if covered up. (See "Celery.") Asparagus beds should have a heavy dressing of rough manure three or four inches thick, and all Onions, Cabbage, Sprouts, Spinach or Lettuce plants that are outside should be covered with two or three inches of leaves, salt hay or straw, to protect them during winter. Cabbages that have headed may be usually preserved against injury by frost until the middle of next month, by simply pulling them up and packing them close together in a dry spot in the open field with the *heads down* and roots up. On the approach of cold weather in December they should be covered up with leaves as high as the tops of the roots; or, if the soil is light, it may be thrown over them if leaves are not convenient. Cabbages so packed will keep until March, if the covering has not been put on too early. If only a few are grown, these and Cauliflower may be hung up in a cool cellar, and will keep in good condition for weeks. The cold frames where Cabbage, Lettuce or Cauliflower plants have been planted will now require regular ventilation by lifting up the sashes in warm days, and on the approach of very cold weather, straw mats or shutters will be a great protection to the plants. For the Cauliflower, this protection is absolutely necessary in this latitude. All vacant ground should be rough dug, plowed or subsoiled whenever practicable to destroy insects, and have the soil well mellowed for crops in spring.

DECEMBER.

GREEN-HOUSE AND WINDOW PLANTS.—Winter is now with us, and all tender plants require the closest attention. The generality of house plants suffer more from being kept too close and warm than from any other cause. This should be guarded against, and the rooms well ventilated on all favorable occasions. If Red Spider or Green Fly—the two great enemies of house plants—show themselves, an occasional syringing with water at a temperature of 140° is very effectual, and is much preferable for window plants to tobacco smoke. For the green-house, however, a gentle smoking with tobacco stems once or twice a week as a preventive is much the best practice. Some of the late Chrysanthemums will still be in bloom, and Primulas, Cyclamens, Azaleas, Callas, etc., should now make the green-house quite gay. The early Tulips and Roman Hyacinths, Crocuses, etc., will also be coming in, and should be succeeded by a fresh batch every week or ten days. The Amaryllis is also a good winter blooming plant, and there are now so many species and varieties that some may be had in flower all winter.

FLOWER GARDEN.—There is but little to do here this month. All necessary pruning of shrubs or trees should now be done; weakly and weather-beaten evergreens are much improved by pruning. As trees in most places are generally planted thickly for immediate effect, a few should be thinned out every year to give the rest a chance to develop, and where they are not removed, judicious pruning is an advantage. Branches should be cut off close to their source, so that the wound may heal over. It is now a good time to top-dress flower beds and lawns with well rotted manure, and, if not yet done, gather all the "bag worms" from Arbor Vitæs and other evergreens. Many choice or half tender herbaceous plants in the rock-garden may be wintered through by a pane of glass placed over them to keep off the rain and snow.

FRUIT GARDEN.—All Blackberries, Raspberries, Grape vines, etc., in such sections of the country where protection from severe frost is desirable, should be laid down this month and covered with a few inches of soil, rough litter or leaves. An annual washing to the stems and branches of fruit trees, with any alkali that is most easily procurable, is of great benefit. It not only removes all Funguses and eggs of injurious insects, but leaves the limbs clean and healthy. Surface manuring is also of great benefit. Any leafy matter, road scrapings, etc., can be utilized; fruit trees rarely suffer from too rich feeding when applied to the surface. Strawberries, if not already mulched, should be attended to at once.

VEGETABLE GARDEN.—Very little can now be done in this department, except in making preparations for the following season. Spinach and other plants in need of protection should have it before the middle of the month, and the final covering given to Celery in trenches or roots in pits, and, if not already done, Asparagus beds should have a liberal coating of manure; Bean-poles, Pea-brush and stakes of all kinds looked over, the tool-house put in order, and everything prepared for spring operations.

Snow that accumulates on cold frames or other glass structures should be removed, particularly if the soil that the glass covers was not frozen before the snow fell. If frozen, it may remain on the sashes longer; for the plants, if frozen, are, of course, dormant, and would not be injured by being deprived of light for eight or ten days.

Whenever it is practicable, all empty ground should be dug or plowed this month, and trenching or subsoiling should be done, wherever necessary and time or opportunity will permit. All such operations, when performed in the fall, not only benefit the soil, but greatly facilitate work in the spring.

USEFUL TABLES AND MEMORANDA.

THE following Tables of Useful Information have been carefully compiled from reliable authorities, and, we believe, may be depended on as being accurate. Questions relative to operations connected with the soil are continually cropping up. To cope with these requires a certain amount of technical knowledge, and it is to provide such that we introduce these memoranda in this work.

TEMPERATURE, RAIN, ETC.

Temperature. The average temperature in the temperate zones being authoritatively given as fifty degrees Fahrenheit, it may be interesting and instructive to many to know the average temperature at different points in the United States, and at cities in various parts of the world.

STATE	CITY	Average Summer Temp.	Average Winter Temp.	Yearly Mean Temp.
		DEG.	DEG.	DEG.
Alabama,	Mobile,	81	53	67
Arkansas,	Little Rock,	79	46	63
California,	San Francisco,	57	52	55
Colorado,	Denver,	70	30	50
Dakota,	Fort Randal,	67	11	39
Delaware,	Wilmington,	68	37	53
D. of Colum'a,	Washington,	74	36	55
Florida,	Jacksonville,	82	59	70
Georgia,	Atlanta,	75	40	58
Idaho,	Boise City,	71	32	52
Illinois,	Chicago,	68	22	45
Indiana,	Indianapolis,	69	40	55
Ind. Territory,	Fort Sill,	79	40	60
Iowa,	Des Moines,	72	24	48
Louisiana,	New Orleans,	82	56	69
Maine,	Augusta,	63	25	44
Maryland,	Baltimore,	74	34	54
Massachusetts	Boston,	69	28	49
Michigan,	Detroit,	70	27	49
Minnesota,	St. Paul,	67	17	42
Mississippi,	Vicksburg,	81	50	66
Missouri,	St. Louis,	74	29	52
Montana,	Helena,	65	20	43
Nebraska,	Omaha,	74	25	50
Nevada,	Carson City	67	34	51
New Hamp.,	Hanover,	56	28	42
New Mexico,	Santa Fé,	66	30	49
New York,	New York,	72	32	52
N. Carolina,	Charlotte,	78	43	61
Ohio,	Cincinnati,	74	35	55
Oregon,	Portland,	64	25	45
Pennsylvania,	Philadelphia,	74	33	54
Rhode Island,	Block Island,	67	33	50
S. Carolina,	Charleston,	81	52	67
Tennessee,	Nashville,	79	41	60
Texas,	Austin,	81	50	66
Utah,	Salt Lake City,	73	31	52
Vermont,	Lunenburgh,	65	17	42
West Virginia,	Helvetia,	67	34	51
Wisconsin,	Milwaukee,	67	23	45
Wyoming,	Cheyenne,	65	27	46

CITY	COUNTRY	Average Summer Temp.	Average Winter Temp.	Yearly Mean Temp.
		DEG.	DEG.	DEG.
Bombay,	India,	83	77	80
Calcutta,	India,	86	72	79
Cape Town,	S. Africa,	70	58	64
Dublin,	Ireland,	60	42	51
Edinburgh,	Scotland,	58	38	48
London,	England,	64	37	50
Madrid,	Spain,	74	42	58
Melbourne,	Australia,	65	49	57
Paris,	France,	65	38	52
Pekin,	China,	81	27	54
Rome,	Italy,	74	45	59
Singapore,	Str. of Malacca,	91	79	85
St. Petersburg,	Russia,	60	17	38
Sydney,	Australia,	69	54	62

An Inch of Rain. An English acre consists of 6,272,640 square inches, and an inch deep of rain on an acre yields 6,272,640 cubic inches of water, which, at 277,274 cubic inches to the gallon, makes 22,622.5 gallons; and as a gallon of distilled water weighs 10 lbs., the rainfall on an acre is 226,223 lbs. avoirdupois. At 2,000 lbs. to the ton, an inch deep of rain weighs 113,127 tons per acre, or for every 100th of an inch considerably over a ton of water falls per acre.—Builder.

Weight of Water. WATER.—A cubic inch of water weighs .0361 lb.; a gallon 10 lbs.; a cubic foot, 62.32 lbs., or measures 6.23 gallons, or a cubic foot of water may be set down at as equal to 6¼ gallons.

Thermometric Scales, French and English.

	Centigrade.	*Reaumur.*	*Fahrenheit.*
Boiling point..	100 deg.	80 deg.	212 deg.
	93.3 "	74.6 "	200 "
	82.2 "	65.7 "	180 "
	71.1 "	56.8 "	160 "
	60.0 "	48.0 "	140 "
	48.8 "	39.1 "	120 "
	43.3 "	34.6 "	110 "
	37.7 "	30.2 "	100 "
	32.2 "	25.7 "	90 "
	26.6 "	21.3 "	80 "
	21.1 "	16.8 "	70 "
	15.5 "	12.4 "	60 "
	10.0 "	8.0 "	50 "
	4.4 "	3.5 "	40 "
Freezing point.	— "	— "	32 "

THE SOIL.

Absorptive Powers of Soil. 100 lbs. of pure clay absorbs 70 lbs. of water, while the same weight of pure sand absorbs 25 lbs.; clay loam absorbs 50 lbs.; chalk, 45 lbs.; loamy sand, 40 lbs., and calcareous sand, 25 lbs. Schubler's experiments show that 1,000 tons of pulverized soils will absorb moisture when exposed to the atmosphere, as follows: sandy clay, 26 tons; loamy clay, 30 tons; stiff clay, 36 tons, and garden mould, 45 tons.

Cohesive Powers of Soil. If the cohesive power of pure clay is taken as the standard and stated at 100, pure sand being placed at zero, the cohesive power of loamy clay is 63; sandy clay, 57; humus, 8, and arable soil, 33.

Weight of Various Soils. A ton of common loamy earth measures 21 cubic ft.; of clay, 17½ cubic ft.; gravel, 18 cubic feet; sand, 23½ cubic ft.; marl, 18 cubic ft.; chalk, 14 cubic ft.

Bulk of Dug Soil. A wheelbarrow will hold about one-tenth of a cubic yard of soil. When dug, soils of various kinds increase in bulk, as follows: earth or clay, one-fourth; sand and gravel, one-twelfth; chalk, one-third; rock, one-fourth.

When thrown into permanent heaps or embankments of considerable size, earth and clay subside to about one-sixth in bulk, and fall vertically about one-fifth; sand and gravel decline in bulk one-fifteenth on an average, and in height one-fourth.

The Angle of Repose of Soils when Thrown Up in Slopes. The following soils will remain permanent when at the angles named: clay, drained, 45°; clay, wet, 16°; compact earth, 50°; vegetable earth, 28°; shingle, 39°; gravel, 40°; sand in its usual conditions, 22°; dry sand, 38°.

MANURES AND FERTILIZERS.

Rotted Stable Manure. In the vicinity of New York this is usually sold by the load of 2,000 lbs.; but in the Eastern States the measurement is made by the cord, containing usually two and one-half to three loads, or 5,000 to 6,000 lbs.; much depending upon the condition of the manure.

Soluble Ingredients in a Ton of Fresh Farm-yard Manure. Water, 1,482½ lbs.; soluble organic matter, 55½ lbs.; soluble silica, 5¼ lbs.; phosphate of lime, 6¾ lbs; lime, 1½ lbs.; magnesia, ¼ lb; potash, 12¾ lbs.; soda, 1¼ lbs.; chloride of sodium, ¾ lbs.; sulphuric acid, 1¼ lbs.; carbonic acid and loss, 4¾ lbs.

Soluble Ingredients in a Ton of Rotted Farm-yard Manure. Water, 1,689¼ lbs.; soluble organic matter, 83 lbs.; soluble silica, 5¾ lbs.; phosphate of lime, 8½ lbs.; lime, 2½ lbs.; magnesia, 1 lb.; potash, 10 lbs.; soda, ½ lb.; chloride of sodium, ¾ lbs.; sulphuric acid, 1¼ lbs.; carbonic acid and loss, 2¾ lbs.

Constituents in a Ton of Various Manures.

PERUVIAN GUANO. — Ammonia, 221½ lbs.; potash, 66½ lbs.; soda, 37 lbs.; phosphoric acid, 283 lbs.; sulphuric acid, 93½ lbs., and chlorine, 62 lbs.

NIGHT SOIL.—Ammonia, 17 lbs.; potash, 2½ lbs.; soda, 4½ lbs.; phosphoric acid, 120 lbs.; sulphuric acid, 2¼ lbs., and chlorine, 2½ lbs.

NITRATE OF SODA.—Ammonia, 364 lbs., and soda, 8¼ lbs.

SULPHATE OF AMMONIA.—Ammonia, 470 lbs., and sulphuric acid, 1,357 lbs.

SULPHATE OF LIME.—Sulphuric acid, 1,317 lbs.

COMMON SALT.—Soda, 813 lbs., and chlorine, 1,187 lbs.

FRESH BONES.—Phosphoric acid, 580 lbs., and ammonia, 145 lbs.

MIXED URINE.—Ammonia, 18¼ lbs.; potash, 2 lbs.; phosphoric acid, 2¼ lbs.; soda, 5½ lbs.; sulphuric acid, 3½ lbs., and chlorine, 1½ lbs.

SOOT.—Ammonia, 50 lbs.; chlorine, 22½ lbs.; sulphuric acid, 194 lbs.; phosphoric acid, 5¾ lbs.; soda, 2½ lbs.; magnesia, 8¾ lbs., and potash, 7 lbs.

Value of Manure according to Professor Johnston. Placing farm-yard manure as the standard, 100; value of the mixed—that is, solid and liquid—excretion of the cow is 98, of the horse 54, of the pig 64. The liquid excretion of the cow is 91; solid do., 125; liquid excretion of the horse, 16; solid do., 73.

Weight of Manure to apply to different Crops, per Acre. Potatoes, 15 to 30 tons; mangel wurzel, 20 to 30; carrots, 12 to 20; hops, 25 to 40; beans, 12 to 20 tons.

ARTIFICIAL MANURES.— Peruvian guano, 250 to 500 lbs.; nitrate of soda and potash, 250 lbs.; salt, 250 to 500 lbs.; soot, 1,000 to 1,500 lbs.

Weight of Manures. Of night soil, a ton measures eighteen cubic feet. Dung with manure retained; a cubic yard weighs a ton. If manure when first taken from the cattle boxes in a fresh state is supposed to weigh 100, it will in a half-rotted state weigh only 80, or will have lost one-fifth; when fully rotted, 50, having lost one-half. Crushed bones weigh about 1,000 lbs. to the cubic yard; bones calcined, about one-half the above; animal charcoal, about 2,000 lbs. to the cubic yard; marl, about, 3,750 lbs; phosphate of lime, about 3,000 lbs., and street or road detritus, about one ton.

Inorganic Constituents returned to the soil in Twelve Tons of Farm-yard Manure to the Acre. Potash, 201 lbs.; soda, 67 lbs.; lime, 337 lbs.; magnesia, 35 lbs.; chlorine, 12 lbs.; sulphuric acid, 84 lbs.; phosphoric acid, 108 lbs.; soluble silica, 269 lbs.; nitrogen, 165 lbs.

Ingredients and Proportions in Making Superphosphate of Lime, according to Anderson. 42 lbs., or one bushel of bones, 17½ lbs. of sulphuric acid, 9 lbs. of water and 10 bushels of ashes; the bones to be sprinkled with the water, before the acid is employed. The amount thus made will be sufficient for an acre. The following is the mode of making it: The cistern should be made of lead or strong wood; the bones should be spread in small quantity upon the bottom of the cistern and the acid gradually poured in upon them from the watering vessel, which should be made of lead, and at the same time a quantity (proportionate to the acid) of boiling water.

Medium Rotted Bone Manure—Decomposed with Potash.

ANALYSIS.	Per Cent.
Phosphoric Acid	3.33
Equivalent to Bone Phosphate of Lime	7.20
Nitrogen	2.57
Equivalent to Ammonia	3.11
Potassa (Potash)	3.10
Equivalent to Sulphate of Potassa	5.80

Rotted Bone Manure, Plain.

ANALYSIS.	Per Cent.
Phosphoric Acid	5.44
Equivalent to Bone Phosphate of Lime	6.86
Nitrogen	2.48
Equivalent to Ammonia	3.02

Analysis No. 1 Peruvian Guano.

	Per Cent.
Moisture at 212° F	13.16
Potash	2.62
Nitrogen	7.76
Total Phosphoric Acid	14 28
Stones	4.62
Equivalent to Ammonia	9.42
Equivalent to Bone Phosphate	31.17

Permanent Pasture Fertilizer, High Grade.

ANALYSIS.	Per Cent.
Ammonia	4 to 4½
Phosphoric Acid, total	10 to 12
Potash as Sulphate and Muriate	3½ to 4½

Analysis of Pure Raw Knuckle Bone Meal.

MECHANICAL ANALYSIS.	Per Cent.
Passed holes $\frac{1}{50}$ inch	76
" " $\frac{1}{25}$ "	21
" " $\frac{1}{12}$ "	3
	100

CHEMICAL ANALYSIS.	Per Cent.	Lbs. per Ton.
Nitrogen	3.82	76.4
Phosphoric Acid	25.61	512.2

Blood and Bone Fertilizer.

	Per Cent.
Ammonia from Blood and Bone	3
Phosphate of Lime, nearly all soluble and available, except ½ per cent	26
Potash, actual	3
Sulphate of Potash	5 to 6

CROPS.

The following Table will assist Farmers or Gardeners in making an Accurate Estimate of the Amount of Land in Different Fields under Cultivation:

10 rods x 16 rods	1 acre.	220 feet x 198 feet	1 acre.
8 " x 20 "	1 "	110 " x 396 "	1 "
5 " x 32 "	1 "	60 " x 726 "	1 "
4 " x 40 "	1 "	120 " x 363 "	1 "
5 yds. x 968 yds.	1 "	200 " x 108.9 "	½ "
10 " x 484 "	1 "	100 " x 145.2 "	⅓ "
20 " x 242 "	1 "	100 " x 108.9 "	¼ "
40 " x 121 "	1 "		

Average Number of Seeds contained in One lb. of the various Cereal Crops. Wheat, 10,000; barley, 15,000; oats, 18,000 to 20,000; rye, 20,000; beans, 900 to 1,000; peas, 1,800 to 2,000; flax, 100,000; hemp, 24,000.

Average Quantity of Seed Sown to an Acre:

IN DRILLS.		
Beets	5 to 6	pounds.
Carrots	4 to 5	"
Dwarf Beans	1¼	bushels.
Early Peas	3	"
Marrowfat Peas	3	"
Onions	5 to 6	pounds.
Onions for sets	60 to 80	"
Onion sets, per acre, according to size	8 to 10	bushels.
Potatoes (cut tubers)	12 to 14	"
Parsnips	5 to 6	pounds.
Radishes	9 to 10	"
Salsify	6 to 8	"
Spinach	10 to 12	"
Turnip	1½ to 2	"

IN HILLS.		
Corn	8 to 10	quarts.
Cucumbers	2 to 3	pounds
Muskmelons	2 to 3	"
Pole Beans	8 to 10	quarts.
Pumpkin	2 to 3	pounds
Squash	2 to 3	"
Watermelons	4 to 5	"

Quantity of Seed Required for a Given Number of Plants:

		About.
Asparagus	1 oz.	500 plants.
Cabbage	1 oz.	1,500 "
Cauliflower	1 oz.	1,000 "
Celery	1 oz.	2,000 "
Egg Plant	1 oz.	1,000 "
Endive	1 oz.	3,000 "
Leek	1 oz.	1,500 "
Lettuce	1 oz.	3,000 "
Marjoram	1 oz.	1,500 "
Pepper	1 oz.	1,000 "
Rhubarb	1 oz.	500 "
Sage	1 oz.	1,000 "
Savory	1 oz.	2,000 "
Thyme	1 oz.	4,000 "
Tomato	1 oz.	1,500 "

Quantity of Seed Required for a Given Number of Hills:

Corn	1 qt. to	200 hills.
Cucumbers	1 oz. to	125 "
Muskmelon	1 oz. to	60 "
Pole Beans, Limas	1 qt. to	100 "
Pole Beans, Wax	1 qt. to	150 "
Pumpkin	1 oz. to	50 "
Squash	1 oz. to	50 "
Watermelon	1 oz. to	30 "

Quantity of Seed Required for a Given Length of Drill:

Asparagus	1 oz.	60 feet of drill.
Beet	1 oz.	50 "
Beans, Dwarf	1 qt.	100 "
Carrot	1 oz.	100 "
Endive	1 oz.	100 "
Okra	1 oz.	40 "
Onion	1 oz.	100 "
Onion sets	1 qt.	50 "
Parsley	1 oz.	125 "
Parsnips	1 oz.	200 "
Peas	1 qt.	75 "
Radishes	1 oz.	100 "
Salsify	1 oz.	70 "
Spinach	1 oz.	100 "
Turnip	1 oz.	150 "

Table Showing the Amount of Seed Necessary for an Acre, and the Number of Pounds to the Bushel:

	No. lbs. to Bu.	No. lbs. to Acre.
Alfalfa	60	12 to 15
Alsike Clover	60	5 to 8
Barley	48	75 to 90
Buckwheat	48	50 to 75
English Rye Grass	28	75 to 100
Flax	56	28 to 42
Hemp	44	30 to 60
Henderson's Mixed Lawn Grass	21	75 to 100
Hungarian	48	40 to 50
Johnson Grass	25	25 to 30
Kentucky Blue Grass	14	40 to 50
Millet	50	40 to 50
Oats	2 to 3 bushels	
Orchard Grass	14	45 to 50
Peas, Field	60	120 to 180
Red Clover	60	12 to 14
Red Top	14	30 to 40
Rye	56	75 to 90
Sugar Cane	50	6 to 8
Timothy	45	25 to 40
Wheat	60	60 to 90
White Dutch Clover	60	5 to 8

Average Gross Produce per Acre of the Cereal Crops. Wheat, 20 to 25 bushels; oats, 35 to 40 bushels; barley, 35 to 40 bushels; rye, 25 to 30 bushels; peas, 25 bushels.

Weights of various Farm Crops. Two and one-fifth cubic feet of new wheat weighs 112 lbs.; oats, 3.65 cubic feet, 112 lbs.; barley, 2.38 cubic feet, 112 lbs.; straw, in its usual condition, weighs 3½ lbs. per cubic foot—it may be compressed to weigh nearly 6 lbs. per cubic foot; hay in like manner will weigh respectively 5 and 8 lbs. per cubic foot. A bushel of grain when lying on the floor occupies a space of one square foot, with a depth of 15½ inches. Turnips, about 1,000 lbs. to the cubic yard; ruta-bagas, about 1,350 lbs.; mangel wurzels, about 1,100 lbs.; potatoes, about 1,250 lbs., and carrots, about 1,100 lbs. to the cubic yard.

A ton of Timothy hay in stack or mow, well pressed, measures 480 cubic feet, or 6x8x10 feet. A ton of mixed Timothy and clover measures 520 feet. A ton of mixed meadow grasses measures 600 feet.

A ton of loose straw measure 900 feet.

Average Weight per Acre of the Root and Hay Crops. Turnips, 20 to 30 tons; carrots, 25 tons; potatoes, 6 to 12 tons; hay, 1 to 2 tons; clover hay, 2 tons.

Average Weight of the Straw of the Cereal Crops per Acre. Wheat, 3,000 to 3,500 lbs.; oats, 2,000 to 2,500 lbs.; barley, 2,100 to 2,500 lbs.; rye, 4,000 to 5,000 lbs.; peas, 2,700 lbs.

STOCK.

Value of different Foods compared with Hay. One hundred pounds of good meadow hay are estimated to be equivalent in feeding value to 80 lbs. of clover, or vetch hay, 200 lbs. of potatoes, 460 lbs. of beet-root with, and 250 lbs. without, the leaves, 250 lbs. of carrots, 400 lbs. of wheat straw, 300 lbs. of barley and oat straw, 25 lbs. of beans or peas, 50 lbs. of oats and 500 lbs. of green clover or vetches.

To Produce 1 lb. of Flesh in Fattening Stock. It is calculated that it takes the consumption of either 100 lbs. of turnips, 50 lbs. of potatoes, 25 lbs. of milk, 9 lbs. of oatmeal, 7 lbs. of barley meal, 7½ lbs. of bread, the same quantity of flour, and 7 lbs. of peas or beans.

Rate of Pulsation of the Animals of the Farm. The horse, 32 to 38 pulsations per minute; an ox or cow, 25 to 42; a sheep, 70 to 79; the ass, 48 to 54; goat, 72 to 76; the dog, 90 to 100; the cat, 110 to 120; the rabbit, 120; the Guinea-pig, 140; of fowls, the hen, 140; the duck, 135.

Periods of Gestation of Farm Animals. Cow, from 240 to 321 days; mare, 322 to 419; ewe, 146 to 161 days; sow, 109 to 143 days; rabbit, 20 to 35 days.

Time Occupied to Hatch Eggs by various Birds. Hen, 21 days; duck, 28 days; turkey, 26 days; goose, 30 days; pigeon, 18 days.

Amount of Air required for Ventilation Purposes by Man and by the Animals of the Farm. If it be correct that when respiration is performed naturally, there are about eighteen respirations in one minute, and 1,080 in an hour; and that by each respiration a pint of air is sent into the lungs, that is, eighteen pints in a minute, or more than two hogsheads in an hour, the effect impurity may produce is evident. When the body is in a state of health there will be seventy-two pulsations of the heart in a minute. Every pulsation sends to the heart two ounces of blood. Thus 144 ounces are sent for purification to the lungs every minute. The blood performs a complete circuit of the system in 110 seconds. These figures show how great is the need for the air we breath to be pure and wholesome.

The minimum amount of space required to keep a man in a healthy condition is 600 cubic feet; this is often the allowance for a *horse*, which should have double that amount of space at least; some idea, therefore, may be obtained of the unhealthy condition of stables. The cow may be set down as requiring at least as much, if not more, than a horse, so that 1,400 cubic feet per cow should be allowed. It has been calculated that the horse inspiring eight times per minute, requires 48,000 cubic inches of air per hour. The quantity of carbonic acid gas created by the respiration of this volume of air per hour is one cubic foot, containing two ounces or thereabouts of solid carbon. To this source of deterioration of the purity of the air of a cow-house, is to be added that arising from the cutaneous perspiration of the animal, which, with pulmonary perspiration, results in the evolution of a weight of watery excreta equal to fifteen pounds every twenty-four hours; add to these sources of impurity those arising from the liquid and solid excreta voided by the animal, and some idea of the state of the air in a badly ventilated cow-house may be formed. The amount of air, then, which from the above data is required for each animal is 6,000 cubic feet, and this space given to a cow-house of ample dimensions will give house room for four animals, thus allowing each 1,500 cubic feet of air per hour; so that to give to each the supply of four times this, the air will require to be changed four times every hour. Each window frame, in the open spaces or chinks connected with it, passes some eight cubic feet per minute; a door will pass at least double that quantity.

FORESTRY, Etc.

Table Showing the Number of Trees or Plants that can be Planted on an Acre, at the distances apart given:

30 x 30 feet	48	6 x 6 feet	1,210
25 x 25 "	69	5½ x 5½ "	1,417
20 x 20 "	108	5 x 5 "	1,742
19 x 19 "	120	5 x 4 "	2,178
18 x 18 "	134	5 x 3 "	2,904
17 x 17 "	150	5 x 2 "	4,356
16 x 16 "	170	5 x 1 "	8,712
15 x 15 "	193	4 x 4 "	2,722
14 x 14 "	222	4 x 3 "	3,630
13 x 13 "	257	4 x 2 "	5,445
12 x 12 "	302	4 x 1 "	10,890
11 x 11 "	360	3 x 3 "	4,840
10 x 10 "	435	3 x 2 "	7,260
9 x 9 "	537	3 x 1 "	14,520
8 x 8 "	680	2 x 2 "	10,890
7 x 7 "	888	2 x 1 "	21,780
6½ x 6½ "	1,031	1 x 1 "	43,560

All Coniferæ and Evergreen Tree-Seeds require to be kept in a cool, dry spot (preferably in dry sand) until the time of sowing. Chestnuts, Walnuts and similar seeds should be planted in the fall, or kept in moist sand or moss, as they lose their germinating power by too long exposure to the air. Apple, Pear, Quince seeds, with Cherry and Peach pits, also those with hard shells, like Magnolias, Locust, etc., should be placed in boxes of sand and well frozen before being sown in spring, to soften their hard outer coating, otherwise they may not vegetate until the second year after sowing. If this has been overlooked, they may be soaked in hot water for a few hours before planting. Osage orange seeds invariably require this treatment. The seeds of other deciduous trees and shrubs, with few exceptions, may be planted during the spring months with every chance of success.

Fruit and Tree Seeds. In raising Fruit or Tree seeds it is well to remember that some varieties germinate very easily, while others will lie dormant a whole season before commencing to grow. The reason for this depends generally on the manner in which the seeds have been treated before sowing, though often seeds of a given species gathered and sown at the same time will show great irregularity in germinating, some of them coming up weeks or even months before others.

Number of Tree Seeds to the Pound.

	About.
Ailantus	20,000
Alder	100,000
Ash, American White	10,000
Ash, European	5,000
Apple	12,000
Arborvitæ, American	30,000
Arborvitæ, Chinese	40,000
Barberry	8,000
Beech, European	1,000
Birch, White	500,000
Black or Yellow Locust	3,000
Box Elder	15,000
Catalpa Speciosa	20,000
Teas' Japanese Hybrid	50,000
Cedar, Red	8,000
Cherry, Black	4,000
Cherry, Pits	1,000
Chestnut, Sweet	100
Elm, American and European	50,000
Fir, Balsam	80,000
Fir, Scotch	70,000
Hawthorn	6,000
Hemlock Spruce	100,000
Hickory Nuts	50
Honey Locust	2,500
Hornbeam	10,000
Kentucky Coffee Tree	200
Larch	100,000
Linden, European	5,000
Maple, Mammoth	7,000
Norway	7,000
Soft	2,000
Sugar	7,000
Sycamore	6,000
Mulberry, sorts	200,000
Norway Spruce	70,000
Osage Orange	10,000
Papaw	400
Peach	200
Pear	15,000
Pine, Austrian	25,000
Quince	15,000
Sweet Gum	20,000
Tulip Tree	20,000
Walnuts	25

MASONRY, WELL DIGGING AND LUMBER.

Stone and Brick Work. One square foot of 8-in. wall requires 16 bricks; 12-in. wall, 24 bricks; 16-in. wall, 32 bricks; 18-in wall, 36 bricks. One perch of stone work is 24¾ cubic feet, or 16½ square feet, 18 inches thick.

Cement and Mortar. One barrel of cement and two barrels of sand will make mortar sufficient for 600 to 700 bricks. One barrel of cement to four of sand and gravel will make nine square yards of concrete floor, three inches thick. One barrel of lime with ten bushels of sand will make mortar for 1,000 bricks. One barrel of lime and ten bushels of sand will make plaster for forty square yards of surface; half a bushel of long hair, or a half more of short hair, will be required. One hundred laths and 500 nails will cover four and a half square yards. A square yard of plastering requires three-fourths of a bushel. A hod of mortar is half a bushel.

On Determining the Size of Cisterns for Rain Water. The size of cisterns should vary according to their intended use. If they are to furnish a daily supply of water they need not be so large as for keeping supplies for summer only. The average depth of rain which falls in this latitude rarely exceeds six to seven inches for two months. The size of the cistern, therefore, need not exceed that of a body of water on the whole roof of the building seven inches deep. To ascertain this amount multiply the length by the breadth of the building, reduce this to inches, and divide the product by 231, and the quotient will be gallons for each inch of depth. Multiplying by seven will give the full amount for two months' rain falling upon the roof; divide by 31½, the quotient will be barrels. Cisterns intended only for drawing from in times of drought should be about three times the preceding capacity.

Contents of a Round Cistern in Gallons and Number of Bricks required for each foot in Depth:

	Gallons.	Barrels.	Bricks.
8 feet in diameter....	376	12½	292
8½ " " "	424	14	308
9 " " "	480	15¾	326
9½ " " "	533	17½	340
10 " " "	579	19	360
11 " " "	690	23	418
12 " " "	840	28	452
13 " " "	992	33	484
14 " " "	1,151	38¼	520
15 " " "	1,321	44	559

A circle encloses the largest space of any figure for the same length of line. A circular cistern is therefore the cheapest. The following table gives the differences of

Area of Square and Round Cisterns.

Diameter	Square. Length of Wall.	Area of Surface.	Round. Length of Wall.	Area of Surface.
8 feet.....	32 feet.	64 square feet.		
10 "	40 "	100 " "	31½ feet.	78½ square feet.
12 "	48 "	144 " "	37¾ "	112 " "
			47 "	117 " "

Twice the diameter of a circle or a square gives four times the area in square feet; twice the diameter of a cube gives eight times the solid contents in cubic feet; half the diameter gives one-fourth of the area, or one eighth of the cubic contents.

Well Digging. Quantity of earth excavated for each foot in depth of different diameters: 3 ft., 261 cubic yards; 3 ft. 3 in., 307 cubic yards; 3 ft. 6 in., 356 cubic yards; 4 ft., 465 cubic yards; 4 ft. 6 in., 589 cubic yards; and 5 ft., 727 cubic yards.

Weight of Timber. English oak weighs 50 lbs. to the cubic foot; American oak, 47; Baltic, 46; mahogany, Honduras, 40; and Spanish, 55; larch, 35; ash, 50; birch, 48; beech, 51; elm, 39; poplar, 32; red pine, 40; yellow pine, 33; Danzic fir, 35; and Memel fir, 38 lbs. to the cubic foot.

WEIGHTS AND MEASURES.

Table for Converting Sundry Weights and Measures

Into the Metric System, and the reverse; constructed on the basis of the tables published in the Smithsonian Report for the year 1865, prepared by Henry G. Hanks.

	1	2	3	4	5	6	7	8	9
No. 1. Inches to millimeters.....	25.40	50.80	76.20	101.60	127.00	152.40	177.80	203.20	228.60
" 2. Cubic feet to liters.....	28.32	56.63	84.95	113.27	141.59	169.90	198.22	226.54	254.85
" 3. Liters to cubic inches.....	61.02	120.05	183.07	244.09	305.12	366.14	427.16	488.19	549.21
" 4. Cubic inches to cubic centimeters...	16.39	32.77	49.16	65.55	81.94	98.32	114.71	131.10	147.48
" 5. Hectoliters to wine gallons.....	26.417	52.834	79.251	105.668	132.085	158.502	184.919	211.336	237.753
" 6. Wine gallons to liters.....	3.785	7.571	11.356	15.142	18.927	22.713	26.498	30.283	40.069
" 7. Liters to fluid ounces.....	33.81	67.63	101.44	135.26	169.07	202.88	236.70	270.51	304.32
" 8. Fluid ounces to centiliters.....	2.957	5.915	8.872	11.829	14.787	17.744	20.702	23.659	26.616
" 9. Kilograms to avoirdupois pounds....	2.2046	4.4092	6.6138	8.8184	11.0230	13.2276	15.4322	17.6368	19.8414
" 10. Avoirdupois pounds to grams.....	453.6	907.2	1360.8	1814.4	2268.0	2721.6	3175.2	3628.8	4082.4
" 11. Kilograms to avoirdupois ounces....	35.27	70.55	105.82	141.09	176.37	211.64	246.92	282.19	317.46
" 12. Avoirdupois ounces to grams	28.35	56.70	85.05	113.40	141.75	170.10	198.45	226.80	255.15
" 13. Kilograms to troy ounces.....	32.150	64.301	96.451	128.602	160.752	192.903	225.053	257.203	289.354
" 14. Troy ounces to grams.....	31.104	62.208	93.311	124.415	155.519	186.623	217.727	248.830	279.934
" 15. Grams to grains.....	15.432	30.864	46.297	61.729	77.161	92.593	108.025	123.458	138.890
" 16. Grains to grams.....	0.0648	0.1296	0.1944	0.2592	0.3240	0.3888	0.4536	0.5184	0.5832

The above table will be found to meet all the requirements of the assayer and chemist. The following example will explain its use: Suppose the capacity of a tank or cistern is found by measurement to be 82 cubic feet, and the number of liters is required. Refer to table No. 2, and find that 8 cubic feet = 226.54 liters. Eighty cubic feet will be ten times as much. Therefore:

80 cubic feet = 2265.40 liters.
2 cubic feet = 56.63 liters.

82 cubic feet = 2322.03 liters.

Metrical or Modern System:

LINEAR MEASURE

French.	*Metre.*		*English.*	
Millimetre,	.001	.	or .039371	inches.
Centimetre,	.01	.	or .39371	"
Decimetre,	.1	.	or 3.9371	"
Metre,	1	.	or 39.371	"
Decametre,	10	.	or 393.71	"
Hectometre,	100	.	or 3937.1	"
Kilometre,	1000	.	or 39371	" or ⅝ mile.
Myriametre,	10,000	.	or 393710	" or 6⅛ miles.

The basis or unit of the system is the *metre*, which is the ten-millionth part of the terrestrial arc from the equator to the pole, and the length of which in English measure is 1.0936 yards, or 3.2809 feet, or as above in inches. By *multiplying* the metre respectively by 10, 100, 1,000 and 10,000, we obtain the *deca*, *hecto*, *kilo* and *myria* metre respectively; and by *dividing* the metre by 10, 100 and 1,000, we obtain the *deci*, *centi* and *milli* metre respectively.

SUPERFICIAL MEASURE.

French.		*English.*
A milliare . .	is equal to	155 square inches.
A centare . . .	"	10.764 square feet.
A deciare . . .	"	11.96 square yards.
An *are*, the unit of square measure, is equal to 1 square decametre, or		119.6 "
A decare . . .	is equal to	1196 "
A hectare . . .	"	2.472 square acres.

SOLID MEASURE.

French.		*English.*
A millistere . .	is equal to	01.028 cubic inches.
A square metre . .	"	1⅓ square yards.
A centiare . . .	"	610.28 "
A decistere . .	"	3.53170 cubic feet.
A *stere*, the unit of solid measure, is equal to 1 cubic metre, or		35.317 "
A decastere . .	is equal to	13.08 cubic yards.
A hectastere . .	"	130.8 "
A kilostere . .	"	1308 "

MEASURES OF WEIGHT.

French.		*English.*
The milligramme	is equal to .015434 or $\frac{1}{65}$ grains troy.	
The centigramme	" .15434	"
The decigramme	" 1.5434	"
The *gramme*	" 15.432 or 15½	"
The decagramme	" .32154 ounces troy.	
The hectogramme	" 3.527 ounces avoir.	
The kilogramme	" 2.2046 or 2⅕ pounds avoir.	
The myriagramme	" 22.046	"

The *gramme*, unit of weight in the metrical system, is equal to a cubic centimetre of distilled water in vacuo at its maximum density, or 390° Fah.

MEASURES OF CAPACITY.

French.		*English.*
A millilitre	is equal to	.061028 cubic inches.
A centilitre	"	.61028 "
A decilitre	"	6.1028 "
A *litre*, the unit of the measure of capacity, is equal to 1 cubic decimetre (see "Linear Measure"), or 61.028 cubic or		1.761 imp. pints.
A decalitre	is equal to	2.2 imp. gallons.
A hectolitre	"	2.75 imp. bushels.
A kilolitre	"	35.317 cubic feet.
A myrialitre	"	353.17 "

APPROXIMATE VALUES.

1 metre	is equal to	3 feet $3\frac{3}{10}$ inches.
1 decimetre	"	4 inches.
5 metres	"	1 rod.
1 kilometre	"	5 furlongs.
1 square metre	"	10¾ square feet.
1 hectare	"	2½ acres.
1 cubic metre	"	¼ cord.
1 litre	"	1 quart.
1 hectolitre	"	2⅘ bushels.
1 gramme	"	15½ grains.
1 kilogramme	"	2⅕ pounds.
Tonneau=1,000 kilos	"	1 ton.

Weight in Pounds of Legal Bushels of Various Articles in the following States:

	Barley	Buckwheat	Corn.	Corn Meal.	Onions.	Oats.	Potatoes.	Rye.	Wheat.	Turnips	Beans.	Clover Seed.	Timothy Seed.	Salt.
Maine	48	48	56	50	52	30	60	..	60	60	64	..	..	..
New Hampshire	..	..	56	50	..	30	60	56	60	..	60	..	..	..
Vermont	48	48	..	..	..	32	60	56	60	..	64	60	42	70
Massachusetts	48	48	56	50	52	32	60	56	60	..	..	..	..	..
Connecticut	..	45	56	..	..	28	60	56	56	..	..	..	..	..
New York	48	48	58	..	..	32	60	56	60	..	62	60	45	..
New Jersey	48	50	56	..	..	30	60	56	60	..	..	64	..	..
Pennsylvania	47	48	56	..	..	30	56	56	60	..	..	62	..	85
Delaware	..	..	56	..	..	..	..	..	60	..	..	..	..	..
Maryland	48	48	56	..	57	32	60	56	60	..	62	64	45	56
Dist. of Columbia	47	48	56	48	57	32	56	56	60	55	62	60	45	50
Virginia	48	48	56	50	..	32	60	56	60	56	60	64	45	..
West Virginia	48	52	56	48	..	32	60	56	60	60	60	60	45	..
North Carolina	48	50	54	46	..	30	..	56	60	..	..	64	..	..
South Carolina	48	56	56	50	57	33	60	56	60	..	60	60	..	50
Georgia	40	..	56	48	57	35	56	..	60	..	..	60	45	56
Louisiana	32	..	56	..	..	32	..	32	60	..	..	..	..	..
Arkansas	48	52	56	50	57	32	60	56	60	..	60	60	45	50
Tennessee	48	50	56	50	56	32	60	56	60	..	60	..	45	..
Kentucky	48	52	56	50	57	33	56	56	60	..	60	60	45	50
Ohio	48	50	56	..	50	32	60	56	60	..	60	60	45	..
Michigan	48	48	56	..	54	32	60	56	60	58	60	60	45	56
Indiana	48	50	56	50	48	32	60	56	60	..	60	60	..	50
Illinois	48	52	56	48	57	32	60	56	60	..	60	60	..	50
Wisconsin	48	50	56	..	..	32	60	56	60	..	..	60	..	..
Minnesota	48	42	56	..	..	32	60	56	60	..	..	60	..	..
Iowa	48	52	56	..	57	33	60	56	60	..	60	60	45	50
Missouri	48	52	56	..	57	32	60	56	60	..	60	60	45	50
Kansas	50	50	56	50	57	32	60	56	60	55	60	60	45	50
Nebraska	48	52	56	50	57	34	60	56	60	55	60	60	45	50
California	50	40	52	..	..	32	..	54	60	..	..	..	..	..
Oregon	46	42	56	..	..	36	60	56	60	..	..	60	..	..

FOREIGN MONEY.

ITS VALUE IN UNITED STATES CURRENCY.

	Value.
Austria, Silver Florin	$0 40.7
Belgium, Gold and Silver Franc	19.3
Bolivia, Silver 5 Franc	82.3
Brazil, Gold Milreis (1,000 reis)	54.6
Bogota, Silver Peso	96.5
Chili, Gold and Silver Peso	91.2
China, Silver Tael	1 38.0
Cuba, Gold and Silver Peso	93.2
Denmark, Gold Crown	26.8
Ecuador, Silver Peso	82.3
Egypt, Gold Piaster	04.9
France, Gold and Silver Franc	19.3
Great Britain, Gold Sovereign	4 86.65
Germany, Gold Mark	23.8
India, Silver Rupee (16 annas)	39.
Italy, Gold and Silver Lira	$0 19.3
Japan, Silver Yen	88.8
Mexico, Silver Dollar	89.4
Netherlands, Gold and Silver Florin	40.2
Norway and Sweden, Gold and Silver Crown	26.8
Peru, Silver Sol	82.3
Portugal, Gold Milreis (1,000 reis)	1 08.
Russia, Silver Rouble (100 copecks)	65.8
Spain, Gold and Silver Peseta (100 centimes)	19.3
Turkey, Gold Piaster	04.4
U. S. of Colombia, Silver Peso	82.3
Uruguay, Silver Patacon	94.9
Venezuela, Gold and Silver Bolivar	19.3

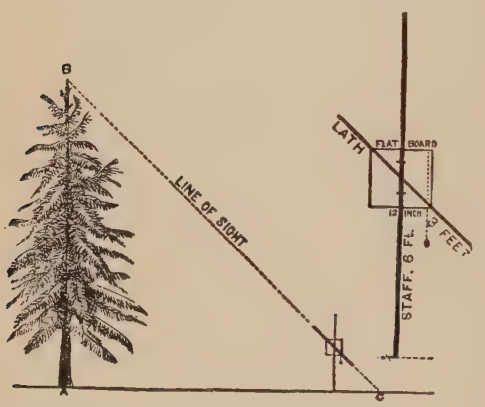
MISCELLANEOUS.

Various Measures. The UNITED STATES or WINCHESTER BUSHEL is 18½ inches diameter (inside measure), 19½ inches outside and 8 inches deep. A struck bushel contains 64 pints=32 qts.=8 gallons, equal to 2,150.42 cubic inches (French, 35.2466 litres). When heaped the cone must be not less than 6 inches high, and it then contains 2,747.40 cubic inches. The IMPERIAL BUSHEL measures 18.8 inches wide and 8 inches deep, and contains when struck 2,218.192 cubic inches. A cord measures 4 feet by 4 feet by 8 feet and contains 128 cubic feet. A cubic foot contains 1,728 cubic inches. An acre contains 43,560 square feet, or 4,840 square yards. A square acre measures very nearly 70 yards, or 210 feet, on each side. A 10-acre field is 40 rods, or 220 yards, or 660 feet, on each side; to double the length of the side makes four times the area of a field. Cubic yards of soil required to cover an acre four inches deep, 538; six inches deep, 807 cubic yards.

Table for Taking Inside Dimensions:

A box	24 x	24 x	15 in.	will contain a bbl. of 31½ gallons.	
"	15 x	14 x	11 in.	" "	10 gallons.
"	8¼ x	7 x	4 in.	" "	1 gallon.
"	4 x	4 x	3⅜ in.	" "	1 quart.
"	24 x	28 x	16 in.	" "	5 bush.
"	16 x	12 x	11½ in.	" "	1 bush.
"	12 x	11½ x	8 in.	" "	½ bush.
"	7 x	6⅛ x	12 in.	" "	1 peck.
"	8⅜ x	8 x	4 in.	" "	½ peck, or 4 dry qts.
"	6 x	5⅜ x	4 in.	" "	¼ gallon.
"	4 x	4 x	$2\frac{1}{10}$ in.	" "	1 pint.

Measuring Trees, Etc.—This very simple plan of ascertaining the height of trees, etc., is taken from the *Journal of Horticulture* (London, July, 1888). The tree measurer on the right of the figure consists of a staff six feet long, pointed for pressing into the ground. To the centre of the staff a piece of half-inch board twelve inches wide and exactly square is affixed with screws. The diagonal cross lath is three feet long and perfectly straight. It may be fixed or movable; if the latter, a small button being screwed on the board for it to rest on when in use. The plumb line is indispensable, as no correct measure-



ment can be had without it. The plumb-bob may be about the size of a small walnut, the string passing through its centre.

In measuring the tree, the staff is placed at a distance from it, so that with the plumb exactly perpendicular the cross lath points to the top of the tree. The person taking the "sight" resting on one knee or reclining to bring the eye to the bottom of the lath. The lath is then drawn to the ground, where the end rests at C in the figure, or, if the lath is fixed, a string will answer the purpose of extending the sight-line to the ground. From this point C to the centre of the trunk will represent the actual height of the tree; or to put the matter concisely, the horizontal line A C is equal to the vertical A B.

When the ground is irregular, provision must be made for having the line level from the root of the tree, or A in the figure, to C. The central board must be a true square, the perfectly straight sighting lath resting across it exactly from corner to corner, as the least deviation will lead to error, and the weight must hang positively plumb, otherwise the measurement will not be accurate.

Measuring the Width of a River. The approximate breadth of a river or other stream may be determined by means of the brim of a hat or the peak of a cap, and this can be done by a boy as well as a man. The person desiring to ascertain this fact must place himself at the edge of one bank of the river and lower the brim of his hat, or peak of his cap, till he finds the edge just cuts the other bank; then, after placing the hand under the chin, so as to steady his head and keep it in exactly the same position, he must turn round steadily till he faces some level ground on his own side of the river, and observe when the edge of the peak again meets the ground. The measure of this distance will be very nearly the breadth of the river.

Common and Chemical Names of Various Substances.—Aqua fortis is nitric acid. Aqua regia is nitro-muriatic acid. Blue vitriol is sulphate of copper. Cream of tartar is bitartrate potassium. Calomel is chloride of mercury. Chalk is carbonate of calcium. Salt of tartar is carbonate of potassa. Caustic potassa is hydrate potassium. Chloroform is chloride of formyle. Common salt is chloride of sodium. Copperas, or green vitriol, is sulphate of iron. Corrosive sublimate is bichloride of mercury. Dry alum is sulphate aluminum and potassium. Epsom salts is sulphate of magnesia. Ethiops mineral is black sulphate of mercury. Fire damp is light carburetted hydrogen. Galena is sulphide of lead. Glauber salt is sulphate of sodium. Glucose is grape sugar. Goulard water is basic acetate of lead. Iron pyrites is bisulphide of iron. Jeweler's putty is oxide of tin. King's yellow is sulphide of arsenic. Laughing gas is protoxide of nitrogen. Lime is oxide of calcium. Lunar caustic is nitrate of silver. Mosaic gold is bisulphide of tin. Muriate of lime is chloride of calcium. Nitrate of saltpetre is nitrate of potash. Oil of vitriol is sulphuric acid. Potash is oxide of potassium. Realgar is red sulphuret of arsenic. Red lead is oxide of lead. Rust of iron is oxide of iron. Sal ammoniac is muriate of ammonia. Slacked lime is hydrate calcium. Soda is oxide of sodium. Spirits of hartshorn is ammonia. Spirits of salt is hydrochloride of muriatic acid. Stucco, or plaster of Paris, is sulphate of lime. Sugar of lead is acetate of lead. Verdigris is basic acetate of copper. Vermilion is sulphide of mercury. Vinegar is acetic acid diluted. Volatile alkali is ammonia. Water is oxide of hydrogen. White precipitate is ammoniated mercury. White vitriol is sulphate of zinc.—*Iron.*

Quantity and Weight of Water in Six Feet of Pipe of the Following Diameters:

Diameter.	Pounds.	Gallons.
½ inch	0.05	0.06
1 "	2.05	0.24
1½ "	4.60	0.54
2 "	8.18	0.96
3 "	18.41	2.16
4 "	32.72	3.84

For double the diameter multiply contents four times.

Weight of Lead Pipes per Foot:

Diameter.	No. 1.		No. 2.		No. 3.	
	lbs.	oz.	lbs.	oz.	lbs.	oz.
½ inch	1	1	..	..	..	..
¾ "	1	8	1	12	2	00
1 "	2	0	2	11	2	14
1¼ "	3	0	3	11	4	7
1½ "	4	0	4	11	5	9
2 "	5	9	7	00	8	5
2½ "	7	0	8	9	10	00

Strength of Rope. A good rope will sustain a weight in pounds equal to the number of the square of the circumference in inches, multiplied by 200. Thus, a rope three inches in circumference, or one inch in thickness, will sustain 1,800 pounds with safety. 3×3=9×200=1,800 lbs.

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